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BULLETIN
of the
UNIVERSITY *of* WISCONSIN

GENERAL ANNOUNCEMENT OF COURSES
1940-1942
(CATALOG)

PUBLISHED AT MADISON, WISCONSIN
NOVEMBER, 1940

Bulletin of the University of Wisconsin

Serial No. 2511 General Series No. 2296 November, 1940

GENERAL ANNOUNCEMENT OF COURSES

1940-42

(CATALOG)

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PUBLISHED AT MADISON, WISCONSIN

NOVEMBER, 1940

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CALENDAR

ACADEMIC YEAR 1940-41	ACADEMIC YEAR 1941-42	FIRST SEMESTER
Sept 13, 14	Sept. 12, 13	Examinations for admission
Sept. 18-24	Sept. 17-23	Freshman period (attendance required)
Sept. 20-24	Sept. 19-23	Registration days for other new students
Sept. 21-24	Sept. 20-23	Registration days for old students
Sept. 24	Sept. 23	Special examinations for removal of conditions
Sept. 25	Sept. 24	Instruction begins
Oct. 5	Oct. 4	Foreign language attainment examinations
Nov. 28	Nov. 27	Thanksgiving Day: legal holiday (one day only)
Dec. 21	Dec. 20	Christmas recess commences
Jan. 7	Jan. 6	Instruction resumes
Jan. 11	Jan. 10	Foreign language attainment examinations
Jan. 18	Jan. 17	Examinations for removal of conditions
Jan. 27-Feb. 5	Jan. 26-Feb. 4	Final examinations
		SECOND SEMESTER
Feb. 3, 4	Feb. 2, 3	Examinations for admission
Feb. 6	Feb. 5	Registration day for new and re-entered students
Feb. 8	Feb. 7	Placement examinations for new students
Feb. 10	Feb. 9	Instruction begins
Feb. 22	Feb. (22) 23	Washington's birthday: legal holiday
March 1	Feb. 21	Special examinations for removal of conditions
April 19	April 18	Spring recess commences
April 28	April 27	Instruction resumes
May 3	May 2	Examinations for removal of conditions
May 17	May 16	Foreign language attainment examinations
May 30	May 30	Memorial Day: legal holiday
June 9-17	June 8-16	Final examinations
June 16, 17	June 15, 16	Examinations for admission
June 21	June 20	Alumni Day
June 22	June 21	Baccalaureate Day
June 23	June 22	Commencement Day
1941	1942	SUMMER SESSIONS
June 23	June 22	Law School opens
June 30	June 29	Registration day, University at large
July 1	June 30	Instruction begins, University at large
July 4	July 4	Independence Day: legal holiday
August 8	August 7	Six-week session closes
August 22	August 21	Eight-week session closes
August 29	August 28	Law School closes

ACADEMIC YEAR 1942-43

Sept. 23	Instruction begins
Dec. 19-Jan. 5	Christmas recess
Feb. 8	Instruction begins
April 17-27	Spring recess
June 21	Commencement

THE REGENTS OF THE UNIVERSITY

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HERMAN L. EKERN, Madison 1943
A. J. GLOVER, Fort Atkinson 1940
WALTER HODGKINS, Ashland 1941
A. T. HOLMES, La Crosse 1947
LEONARD J. KLECZKA, Milwaukee 1944
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MRS. BARBARA VERGERONT, Viroqua 1942
A. MATT WERNER, Sheboygan 1945
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Course in Humanities—Robert L. Reynolds, *Chairman*

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Course in Physical Education for Women
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SUMMER SESSION—Scott H. Goodnight, *Dean*

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WILLIAM S. KINNE, *Consulting Structural Engineer*
JOHN J. NOVOTNY, *Power Plant Engineer*

GENERAL INFORMATION

THE CAMPUS

The University Campus, situated in the city of Madison, a mile west of the State Capitol building, spreads for nearly a mile along the crest and on the wooded slopes of an irregular ridge bordering the southern shore of Lake Mendota, the largest of Madison's four lakes. On this attractive site are located approximately one hundred buildings comprising classrooms and experimental laboratories, libraries, hospitals, a large community center, dormitories, a stadium and gymnasiums, observatories, the Forest Products Laboratory, and other buildings essential to the operation of a large university. Experimental farms and athletic playing fields occupy much of the lower western part of the grounds which extend almost another mile along the lakeshore. A large amount of open landscaped area surrounding the university buildings offers ample opportunity for future development of the physical plant.

LIBRARIES

The Library of the University of Wisconsin is made up of the general collection in the Historical Society building and the following departmental and college libraries, which are catalogued as parts of the University library: Agricultural, Biology, Chemistry, Education, Engineering, Geography-Geology, Library School, Medicine, and Physics-Mathematics. The library of the Law School is an independent library. In addition to these libraries, that of the Wisconsin State Historical Society is located on the campus and its contents are available, with certain restrictions, to the students and faculty of the University. The library of the Wisconsin Academy of Sciences, Arts, and Letters is on deposit in the University Library and is catalogued with it. The collections of these libraries now total over 1,100,000 bound volumes and approximately 400,000 pamphlets.

Other important libraries in Madison are the Wisconsin State Law Library and the State Legislative Reference Library in the State Capitol, and the Madison Free Library on North Carroll Street.

PUBLICATIONS OF THE UNIVERSITY

The University of Wisconsin Press is the publishing organization of the University. Results of research sponsored by the University and other works regarded by the Committee on Publications as worthy of the University imprint are issued and marketed by the University Press. The Press has also taken over the sale of the University of Wisconsin Studies and all monographic numbers of the University of Wisconsin Bulletin except the Engineering Series, which is distributed by the University Editor.

The general series of the Bulletin of the University of Wisconsin includes the annual announcements of courses, both general and special. Copies of the special announcements of the various schools and colleges may be obtained upon application to the University Editor; the complete announcement is reserved for institutional distribution and so is not available to prospective students. The University Directory, containing names, classifications, and addresses of students and staff members, is published annually in November; copies are mailed by the Information Office upon receipt of thirty-five cents in stamps.

The high-school series, comprising a number of manuals designed to assist secondary school teachers in the subjects of the high-school curriculum, is published by the Committee on High-School Relations.

From the Washburn Observatory are issued the Publications of Washburn Observatory; from the Agricultural Experiment Station, bulletins and annual reports; and from the Agricultural Extension Office, circulars dealing with farming and home making.

STUDENT EXPENSE

UNIVERSITY CHARGES

The University reserves the right to alter any of these charges without notice.

FEES AND DEPOSITS FOR RESIDENTS AND NON-RESIDENTS. Each student is required to pay a general semester fee to cover registration, incidentals, infirmary service, Memorial Union membership, and use of the Physical Education facilities. To the general semester fee is added a professional fee if the student if registered in law, medicine or music; and a tuition charge if he is a non-resident. Life members of the Memorial Union are entitled to a deduction of five dollars from their semester fees. Other exemptions and modifications in the semester fees may be found in the following paragraphs of this section (pages 2-4).

		RESIDENTS	NON-RESIDENTS
Law School	1940-41	$48.00	$148.00
	1941-42	49.50	149.50
Medical School		57.50	157.50
Music School		62.50	162.50
Other Schools and Colleges		32.50	132.50

Additional fees, required only of certain groups, are (1) laboratory fees and deposits varying in amount according to the subjects elected, (2) a $2.00 library deposit, required of each student when he first matriculates, (3) a $5.00 graduation fee for each degree, and (4) a $2.00 fee for each student who is taking five or less credits in law and who is not enrolled in the Law School. In computing fees for the latter, Political Science 115 (Law in Society) is considered as a law course.

The following exceptions to the above semester fees have been established. (1) Upon recommendation of the appropriate dean, students are permitted to register for a maximum of five credits of residence study each semester, at the rate of $5.00 per credit for residents and $15 per credit for non-residents. (2) Adult residents of Wisconsin are permitted to audit one course per semester upon payment of $2.50 per credit provided the consent of the dean or director of the appropriate school or college is first obtained. (3) Students entering after half a semester has elapsed pay half of the semester fees. Students registering under the regulations of this paragraph are not subject to the penalty for late registration, and those in groups 1 and 2 are excluded from infirmary, Memorial Union, and physical education privileges.

NON-RESIDENT TUITION. Tuition of $200 per academic year, or $100 per semester is charged to students in all schools and colleges of the University who are non-residents of this State (see exemptions and modifications below.)

I. The following students are exempt from non-resident tuition:

1. Any adult student who has been a resident of the State for one year next preceding his first admission to the University, and as long as he continues to be a resident of the State;

2. Any adult student who has entered the University and paid non-resident tuition for four academic years, and has become and continues to be a resident of this State;

3. Any adult student who has paid non-resident tuition for one semester or more and has continuously been a resident of this State for the four-year period following his admission to the University, and so long as he continues to be a resident of this State;

4. Any minor student whose parents have been bona fide residents of this State for one year next preceding the beginning of any semester for which the student registers in the University.

II. The Regents of the University, acting under the provisions of Section 36.16 (C), Laws of Wisconsin, 1937, have established the following departures from the standard $200 annual non-resident tuition. These departures apply only to residents of other states maintaining a state university whose non-resident fee for residents of Wisconsin is less than $200 per year; provided that

(A) These non-residents, if undergraduates, have completed at least two semesters' work on full programs at the University of Wisconsin and have earned a scholastic average of two or more grade-points per credit on full programs during the last two semesters of their attendance at Wisconsin; or that

(B) These non-residents, if Law, Medical, or Graduate students (a) enter the University of Wisconsin from accredited institutions with a scholastic average of two or more grade-points per credit on all their work at the other institutions; or (b) have made a scholastic average of two or more grade-points per credit (or its equivalent in the case of the Law School) on full programs during the last two semesters of their attendance at the University of Wisconsin; provided, that any subsequent work at any other accredited institutions has been of like quality.

For those students who have qualified in accordance with the above requirements, the amount of reduction from the regular $200 non-resident tuition will be as follows:

1. For residents of those states which have for their university an annual non-resident tuition of more than $100 but less than $200, the reciprocal non-resident tuition for attendance at the University of Wisconsin will be the same amount as is assessed residents of Wisconsin who attend the state university maintained by such other state.

2. For residents of those states which have an annual non-resident tuition of $100 or less, the reciprocal non-resident tuition for attendance at the University of Wisconsin will be the minimum amount of $100 annually.

Finally, it will be understood that the continuance of the privilege of the reduced fee for any given student will depend upon the maintenance of the level of scholarship required for admission to the privilege.

PAYMENT. All fees must be paid at the beginning of each semester. Until this has been done, the student is not matriculated and is not entitled to attend classes. A fine of three dollars ($3.00) is charged for late registration, applicable to all students paying fees after regular registration days, with no exemptions for any reason. The cashier is required not to accept fees from any student who does not pay promptly after his registration card is issued.

Students who register during any semester, attend classes without paying fees, and then withdraw from the University, will, upon re-entering the University, be assessed delinquent fees according to the following schedule: withdrawal during the first two weeks, 20%; during the third and fourth weeks, 40%; during the fifth and sixth weeks, 60%; during the seventh and eighth weeks, 80%; after the eighth week, 100%. The full amount of the five dollar registration fee will be assessed in all cases where the student withdrew without paying fees.

REFUNDS. The cashier, upon recommendation of the Registrar, is authorized to make refunds of semester tuition and fees (excepting the registration fee which is not refunded) on the following basis to students withdrawing from the University:

withdrawal without attending classes 100%; withdrawal within two weeks from the first day of instruction, 80% refund; within four weeks, 60%; within six weeks, 40%; within eight weeks, 20%; after eight weeks, no refund. Students entering after regular registration days and withdrawing within eight weeks from the first class day will, upon recommendation of the Registrar, be allowed refunds according to the above schedule based on the time actually in residence. No claim for remission of fees will be considered unless such claim be presented during the fiscal year to which the claim is applicable. No fees are refunded in case a student is suspended for disciplinary reasons.

EXEMPTIONS FOR GRADUATE STUDENTS. In general, graduate students are required during the regular year to pay the same fees as are undergraduates, with the following exceptions: (a) instructors, and graduate teaching and research assistants are exempt from laboratory fees in courses taken in the department in which they hold appointments, and, unless otherwise specified in the appointment, from the non-resident tuition*; (b) fellows and scholars are exempt from the non-resident tuition and from laboratory fees in courses taken in the department in which they hold appointments or, by special permission, in the department in which they major; (c) honorary fellows and honorary scholars are exempt from the non-resident tuition and from the incidental portion ($18) of the semester fee; honorary fellows, in addition to these exemptions, are exempt from payment of laboratory fees; (d) members of the teaching and research staff of the University not designated above, members of the State Geological and Natural History Survey, members of the technical staff of the Forest Products Laboratory, staff members of the United States Department of Agriculture stationed at the University and engaged in research, technical experts employed in any department of the state government, and officers of the United States Army detailed as students by proper authority are exempt from the non-resident tuition fee.

When any candidate for a Ph.D. degree holding an appointment listed in the preceding paragraph shall have paid to the University as a graduate student seven semester or summer session fees, he shall be exempt from further payment of the incidental portion ($18) of the semester fee in both the regular and the summer sessions, as long as he shall continue to hold such official appointment. In the administration of this rule, one but only one, eight-week summer session fee or its equivalent may be counted as two of the seven fees above mentioned; also the full amount of any prescribed fee shall be charged. A maximum of two semesters may be credited from other schools as two of the seven fees.

Graduate students who are not residents of the State and who are not members of the university staff of instruction or research, and who in any semester pursue studies in amount less than half the normal amount, may have their fees prorated in proportion to the amount of such study upon obtaining the recommendation of the Dean of the Graduate School to the Registrar that the case comes under this rule and that he regards it as one of more than common merit. However, the prorated fee shall not be less in amount than the general fee for the semester.

EXAMINATION FEE FOR GRADUATE STUDENTS. All students taking the examination for the master's degree are required to pay an examination fee of $10. Candidates for the master's or the doctor's degree, who are not enrolled at the time they present themselves for examination, are required to pay a registration fee of $10.

WISCONSIN HIGH SCHOOL. Tuition in the Wisconsin High School is $8.00 per quarter for residents and $15 for non-residents.

*The general rule as to exemption from the non-resident tuition for instructors and assistants is that the exemption applies only to those whose stipend amounts to at least $400 per academic year (or $200 per semester). Those with lesser stipends will be required to pay the non-resident tuition.

SUMMARY OF EXPENSES

Although it is difficult to give a definite set of figures, it is reliably estimated that student expenses average approximately $650 per academic year, exclusive of clothing, transportation to and from Madison, and non-resident tuition. Many students spend more than $650, but others are able to manage for as little as $420 without doing any outside work. The largest items of expense are charges for University fees and for board and room. Charges for University fees have been outlined in the preceding pages; the following pages carry a detailed discussion of costs for room and board. Clothing, transportation, textbooks and materials, laundry, and sundry personal items make up the balance of the student's costs.

SELF-SUPPORT

The University Student Employment Bureau is maintained to assist men and women students who are partly or wholly self-supporting during their attendance at the University. More than half of the students at the University of Wisconsin must depend upon themselves for part or all of their resources.

A student should not expect to secure a definite job before he arrives in Madison to stay. The employer usually requires a personal interview. He often wants help on very short notice so that it is necessary to send a student who is in Madison and ready for immediate employment. The number of applicants is far greater than the number of available jobs.

Students who enter should have enough available to pay all necessary expenses for at least the first semester ($200 to $250), exclusive of the non-resident tuition, clothing, and travel expenses. It usually takes a semester to make adjustments, and it often takes longer to find suitable employment. In case no work is available, this reserve fund furnishes a margin of safety and enables the student to complete the semester. Students who have been unable to find work and who have no reserves for the second semester should not assume that the University will be prepared to finance them.

The National Youth Administration program enables the University to give part-time employment during the regular school year to a number of needy students who earn, on the average, $15 monthly. The program is limited to students who are United States citizens and who are between 16 and 24 years of age inclusive. Those who are interested in the possibility of obtaining NYA employment are advised to communicate with the University Registrar.

The student employment bureau is called upon to furnish students as houseworkers (principally women students) in private homes in exchange for room or room and board; stenographers, typists, clerks, waiters and waitresses, dishwashers, cooks, janitors, bell boys, clothes pressers, musicians, repairmen, window washers, house cleaners, gardeners, tutors, skilled tradesmen and technical workers.

Part-time teaching, technical, semi-professional, and departmental work in the University or in Madison business concerns is usually handled by graduate students or upperclassmen who have been in attendance here.

Much student work is temporary, but any students, when they become acquainted here, are able to secure work which enables them to complete their courses successfully. It is essential—

1. to start with at least $200 to $250 available;
2. to have good health, be willing to forego some good times and unnecessary participation in outside activities, and to have reasonable scholastic ability;
3. to be dependable and to consider a job as a business proposition;
4. if the study load is too heavy, to carry a reduced program of classes in order to do justice to school work, to the job, and to one's health.

Upon arrival in Madison, students in need of work should apply to the Student Employment Bureau, Memorial Union Building. Working students may obtain copies of regulations which govern student wages and hours at the bureau.

LOAN FUNDS AND UNDERGRADUATE SCHOLARSHIPS

The State Legislature, the Regents and a number of friends of the University have from time to time contributed various sums of money to be used for the assistance of students of limited means and good character. The income from some of these special funds is available in the form of scholarships, which are awarded annually to a limited number of individuals selected on the basis of scholastic attainment and financial need. The income from certain other funds is available for emergency loans to students in urgent need. In general, such loans are made for periods of less than a year, are limited in amount, and are available only to students who have attended the University a minimum of one semester with a satisfactory scholastic average. In view of the keen competition for scholarships among students who have been in residence at the University for at least one year, there is ordinarily little opportunity to consider the applications of new students. In general, both types of funds are administered by a faculty committee on loans and undergraduate scholarships, to which application should be made for information or assistance.

SCHOLARSHIPS

SCHOLARSHIPS AVAILABLE TO FRESHMEN. A limited number of cash scholarships ($50 to $75 each) may be available to incoming students who are residents of Wisconsin. Applications should be in the hands of the Chairman of the Committee on Loans and Undergraduate Scholarships before July 1st. The letter of application should include a statement of the individual's choice of work in the University and his financial needs, an official transcript of the high-school record, and three or four letters of recommendation.

Five scholarships of $100 each will be awarded to freshmen in the agricultural courses who are residents of Wisconsin. An essay on an assigned topic must be presented together with certain references, before August 15. For further information write Assistant Dean I. L. Baldwin, College of Agriculture, Madison, Wisconsin.

WISCONSIN HIGH-SCHOOL SCHOLARSHIPS, equivalent in value to the freshman general fees ($65) are distributed annually to graduates of Wisconsin public high schools and accredited private secondary schools whose parents or guardians are residents of Wisconsin. The number of scholarships from each school is determined by the number enrolled, in the following manner: schools enrolling under 250, the student ranking first in scholarship; schools enrolling from 250 to 750, the two students ranking first and second in scholarship; schools enrolling 750 or more, the three students ranking first, second and third in scholarship. The scholarship is available only during the year immediately following graduation from high school. Applications for these awards should be filed with the Registrar before September first.

NON-RESIDENT SCHOLARSHIPS—For the remission of non-resident tuition to a number of needy and worthy students, upon the basis of merit. The annual number of these scholarships is about 150. They are available for graduates as well as undergraduates.

VICTOR E. ALBRIGHT SCHOLARSHIP FUND—Two annual scholarships of $100 each to be awarded to graduates of high schools in Dane County who attended the same high school during their junior and senior years.

CHICAGO ALUMNAE SCHOLARSHIP—For a woman student, preferably from the Chicago district.

AMERICAN ASSOCIATION OF UNIVERSITY WOMEN SCHOLARSHIPS, Madison Branch—The Lois K. Rosenberry Scholarship and the Annie Dinsdale Swenson Scholarship of $100 each are awarded in alternate years, one or the other scholarship being given each year, to women students, preferably of junior or senior standing.

CLASS OF 1936 MEMORIAL SCHOLARSHIP FUND

AMELIA E. H. DOYON SCHOLARSHIPS—Two scholarships for women who have attended the University of Wisconsin for at least one year.

WILLIAM J. FISK SCHOLARSHIPS—Awards made annually.

KOHLER FAMILY SCHOLARSHIP FUND—Endowed by the Kohler family, of Kohler, Wisconsin, to encourage attendance at the University by deserving graduates of the public high school of Kohler.

KAPPA KAPPA GAMMA SCHOLARSHIP—For women students.

HARRIET SAUTHOFF KRONCKE SCHOLARSHIP FUND—For students interested in the advanced study of German.

FANNIE P. LEWIS SCHOLARSHIPS—For women students.

LA VERNE NOYES SCHOLARSHIPS—For students who have participated in the Great War, or for the children of veterans. Scholarships are applicable, in whole or in part, to fees. Applications should be made by September first.

OMICRON NU SCHOLARSHIPS—$250 annually for a woman in Home Economics of junior, senior or graduate rank, awarded by the Faculty Committee of Omicron Nu.

EVA S. PERLMAN MEMORIAL SCHOLARSHIP—$50 for women students majoring in the Department of Economics.

PI LAMBDA THETA SCHOLARSHIPS—$25 awarded in February to the second semester senior woman in the School of Education or completing the requirements for the Teachers' Certificate who has maintained the highest scholastic average during the last five semesters of her previous attendance at the University.

HARLAN B. ROGERS ATHLETIC SCHOLARSHIP—Awarded annually to a male student in one or more of the recognized branches of competitive athletics. Candidates must take at least one subject which deals principally with the problems of government.

ISRAEL SHRIMSKI SCHOLARSHIP FUND—For men and women.

SIVYER EDUCATIONAL FUND—At least two scholarships annually, designated as the Sivyer Scholarships.

CHRISTINE MARGARETHA STEENBOCK FELLOWSHIP—Endowed by Professor Harry Steenbock and his sister, Mrs. Robert Bruce Brinsmade, in honor of their mother, for seniors in Home Economics.

HENRY STEENBOCK FELLOWSHIP—Endowed by Professor Harry Steenbock and his sister, Mrs. Robert Bruce Brinsmade, in honor of their father, for seniors in Agriculture.

CHRISTIAN R. STEIN STUDENT AID FUND—Awarded annually to a student who has been in attendance for at least one year.

J. STEPHENS TRIPP SCHOLARSHIP—Awarded annually to students, graduate or undergraduate, from Sauk County, Wisconsin.

MARTHA GUNHILD WEEK SCHOLARSHIP—For a woman student in chemistry.

WISCONSIN ALUMNI RESEARCH FOUNDATION UNDERGRADUATE APPRENTICESHIPS—For seniors in the natural science fields. For 1940-41 there will be 20 awards in the amount of $250 each.

WISCONSIN WOMEN'S ATHLETIC ASSOCIATION SCHOLARSHIP—Two scholarships of $50 each awarded annually to undergraduate women.

LOANS

Recipients of loans from the University are required to respond promptly to communications from the Secretary of the Regents. By Regent action, "A student's diploma shall be withheld and all requests for official transcripts or information regarding his record shall be denied until either payment or satisfactory arrangement for payment of loans from the student loan funds be made with the Secretary of the Regents. A student in residence who has, for thirty days or more, ignored statements regarding his loan shall be excluded from classes until he has made satisfactory arrangements regarding it with the Secretary of the Board of Regents."

Unless otherwise indicated below, applications for loans should be made to the Manager of Student Loan Funds, Administration Building.

STATE UNEMPLOYMENT STUDENT LOAN FUND—For residents of Wisconsin.

AGRICULTURAL LOAN FUND—For information address the Assistant Dean, College of Agriculture.

MRS. WILLIAM F. ALLEN MEMORIAL LOAN FUND—For women students.

ALPHA EPSILON PHI LOAN FUND—For women students, preferably upperclass students, in the College of Letters and Science.

BETA SIGMA OMICRON SCHOLARSHIP LOAN FUND—For senior or graduate women students, preference given to members of Beta Sigma Omicron Sorority.

ARCHIBALD W. CASE LOAN FUND—For engineering students. For information address the Dean, College of Engineering.

CHICAGO ASSOCIATION OF WISCONSIN ALUMNAE LOAN FUND—For women students, preference given to juniors and seniors.

CLASS LOAN FUNDS—For men and women students. Established by the classes of 1885, 1898, 1912, 1913, 1914, 1916, and 1934.

ALPHA OF CORANTO LOAN FUNDS—For women students in the School of Journalism.

AVA L. COCHRANE MEMORIAL LOAN FUND—For men and women students.

EMERY LOAN FUND—For women students.

ARTHUR END MUSIC LOAN FUND—For information address the Director of the School of Music.

ENGINEERING LOAN FUND—For engineering students, upon recommendation of the Dean of the College of Engineering.

THE WISCONSIN ENGINEER LOAN FUND—For engineering students, upon recommendation of the Dean of the College of Engineering.

CORA RODERMUND EVANS LOAN FUND—For deserving students in the Medical School, upon recommendation of the Dean of the Medical School.

GEORGE CONVERSE FISK LOAN FUND—Preference given to students in the Department of Classics.

GRADUATE CLUB LOAN FUND—For graduate students in the last semester of their work toward a doctorate, upon recommendation of the Dean of the Graduate School and a designated member of the Graduate Club Council to be elected by the members of the council.

GRADUATING CLASS LOAN FUND—For men and women students.

HENRY A. AND MINNIE P. HUBER SCHOLARSHIP LOAN FUND—For scholarship loans to Dane County farm boys and girls who are interested in the study of agriculture and farm management. For information address the Assistant Dean, College of Agriculture.

JOHN A. JOHNSON STUDENT AID FUND—For men and women students.

BURR W. JONES LOAN FUND—For students in the Law School, upon recommendation of the Dean of the Law School.

E. R. JONES LOAN FUND—For students in the College of Agriculture.

KEMPER K. KNAPP LOAN FUND—For men and women students.

HENRY KOPLIK MEMORIAL LOAN FUND—Available to students in the College of Letters and Science.

KUPPENHEIMER LOAN FUND—For men students.

LAKE MONONA WILD LIFE SANCTUARY LOAN FUND—Preference given to Indian students.

HAZEL MANNING STUDENT LOAN FUND—For juniors and seniors in Home Economics.

THOMAS J. MARSTON LOAN FUND—For undergraduate men and women.

MEDICAL SCHOOL LOAN FUND—For students in the Medical School, upon recommendation of the Dean of the Medical School.

ANN M. OPPER SCHOLARSHIP LOAN FUND—For women students who are majors in education and who are residents of Wisconsin.

GUSTAVE AND MELANIE OPPER SCHOLARSHIP LOAN FUND—For men and women students who are residents of Wisconsin.

WOMEN'S AUXILIARY, WISCONSIN PHARMACEUTICAL ASSOCIATION LOAN FUND—For a student in Pharmacy who is a daughter or a son of a Wisconsin druggist. Recommendations for loans are made by the Director of the Course in Pharmacy.

PHARMACY LOAN FUND—For students in Pharmacy. Preference to be given to women students.

PHI BETA LOAN FUND—For graduate students.

PHI DELTA GAMMA LOAN FUND—For women students in the Graduate School. Preference to be given to members of Phi Delta Gamma.

PI LAMBDA THETA LOAN FUND—For women students preparing to become teachers.

JOHN J. POSSEHL LOAN FUND—For pharmacy students, upon recommendation of the Director of the Course in Pharmacy.

HARRY S. RICHARDS LOAN FUND—For students in the Law School, upon recommendation of the Dean of the Law School.

ALEXANDER H. ROGERS LOAN FUND—For men and women students.

SECRETARY'S LOAN FUND—For information address the Secretary of the Regents, Administration Building.

SERVICE SCHOLARSHIPS—The Regents may grant loans of not more than $400, during the last year required for any degree in the University, to students of exceptional merit who have been recommended by the department of their major subject. The borrower promises to serve the State for a year or two as an apprentice in a position previously determined by the State Director of Personnel and to repay the loan during this period.

ISRAEL SHRIMSKI LOAN FUND—For men and women.

ISRAEL SHRIMSKI STUDENT AID AND LOAN FUND—For men and women.

SIGMA DELTA EPSILON LOAN FUND—For graduate women. Preference given (1) to members of Sigma Delta Epsilon and (2) to other graduate women students in science. Loans made upon recommendation of the Dean of Women, Dean of the Graduate School, and Assistant Dean of the College of Agriculture.

SIGMA XI LOAN FUND—For men and women students. Preference given to those who are near the doctorate degree.

BERTHA E. STOPPENBACH LOAN FUND—For Music School students.

HENRY STRONG LOAN SCHOLARSHIPS—For upperclass men and women students under the age of twenty-five years.

THETA SIGMA PHI JOURNALISM FUND—For journalism and pre-journalism students, upon recommendation of the Director of the School of Journalism.

THE MAJOR LYMAN C. WARD MEMORIAL LOAN FUND—For men students. Preference given to undergraduates.

ELIZABETH WATERS LOAN FUND—For women majoring in physical education, upon recommendation of the Director of the Course in Physical Education for Women.

WISCONSIN ALUMNI CLUB OF MINNEAPOLIS LOAN FUND—For women.

WISCONSIN ALUMNI ASSOCIATION LOAN FUND—For undergraduate men and women.

ROOM AND BOARD

THE UNIVERSITY RESIDENCE HALLS

HALLS FOR MEN. The university halls for men are located on the lakeshore below Observatory Hill on one of the most beautiful sites in the State, away from the city, yet convenient to class and lecture. The location has every physical advantage: the lake with its opportunity for summer and winter recreation; adjacent playing fields for intramural sports; the privacy of a little community by itself, yet truly a part of the University. The halls are modern and fireproof, the student rooms attractive and well furnished. Recreation space within the halls is abundant, and there are two large lounges, the Redwood Room and the Pine Room, the latter a combined lounge and luncheon room.

Tripp and Adams halls, built in quadrangular form around common courts, accommodate 30 men in each of the 16 houses or units. Here the undergraduates live under the supervision of an older man, a University-appointed house fellow. The men have their meals with table service in the adjacent Van Hise dining rooms.

Directly to the west are the eight new Kronshage units, with accommodations for 80 men in each house, also under a house fellow. These men take their meals in the Kronshage cafeteria. Four of the houses are cooperative, in which the men share in the work of the unit and pay a correspondingly lower rate.

All residents belong to the men's dormitory association and pay a nominal fee for the support of this association, which provides periodicals, sponsors the social and athletic programs, and supervises the operation of the rifle range, camera club, workshop, store, barber shop, music room, game room and library.

Charges for room and board are payable in advance by the quarter.

In Tripp and Adams halls single room with board is $356-$376 a year; a few larger rooms are available at slightly higher rates. Double room with board is $341 a year a person.

In the Kronshage houses with maid service double rooms with board are available at $300-$305 a year a person.

Mack, Jones, Swenson, and Gilman houses are cooperative. Mack House is open to men who work outside the men's dormitories for their meals; the rate here for a double room is $70 a year a person. In Jones, Swenson and Gilman houses the rates for double room and board is $270-$275 a year a person.

In all units bed linen is furnished and laundered by the University; all rooms are fully furnished except that in the cooperative units the men furnish their own blankets. All dormitory students provide for their personal laundry and towels.

HALLS FOR WOMEN. Chadbourne and Barnard halls are adjacently located on one of the most beautiful corners of the campus. Surrounded by lawn and shade, at the foot of the hill, convenient to library and class rooms, these attractive halls have for years been popular student homes. The head residents, cultured university women, are always available for counsel and guidance. Each hall has its own house organization which governs the hall and cooperates with the head resident in stimulating interest in many valuable opportunities of college life. This organization charges nominal dues to meet a portion of the cost of the social and cultural program of the halls. Charges for room and board are payable in advance by the quarter. Single room with board is $380 a year. Two-room suite and board cost $380 a year a person. Double room with board is $350 a year a person.

Elizabeth Waters Hall is the University's answer to the requests from students and parents for more campus dormitories for women. This new residence, which is opening for the 1940 summer session, will be in operation for the 1940-41 academic year; it will accommodate 490 women in double rooms, at a cost of $395 a year a person for room and board. Its incomparable site, on the hillside east of Tripp and Adams and overlooking the wooded slope and the lake, was reserved for a residence hall years ago by the Regents of the University. There is a large central unit with four connecting wings, all opening on a terrace facing the lake. In the central building is a large reception room, the main lounge, the library, small parlors, and a music room. Two spacious dining rooms with a view of the lake open on the terrace. There are numerous fudge kitchens and small laundries and many occasional spaces for reading and informal conversation. The student rooms are homelike, convenient and attractively furnished. A student counseling system is being initiated in Elizabeth Waters Hall which will be a promising step forward in the field of student self-government.

General Information Concerning All University Dormitories. To reserve a room for the academic year, mail a $10 deposit (remittances should be made payable to Dormitories and Commons), together with an application blank carefully filled out. Under a new ruling, applications are received beginning October 1. Deposits are refunded at the end of the period of residence.

Assignments to freshmen are made beginning May 1, to upperclassmen beginning July 15. First preference is given to Wisconsin residents. Rooms are assigned for the academic year, and students may leave only if their rooms are re-rented without loss to the University. Applications for rooms are accepted for the second semester as well as for September. All rooms are rented with board (except in Mack House).

The halls are closed during the Christmas recess; they are open during the spring recess but the dining rooms are closed during this period.

The halls open the day before the beginning of Freshman Period in the fall and close the day after final examinations in June.

Baggage will be received on the day the halls open and should be legibly marked with hall and room number.

Address all requests for information and for additional application blanks to the department of Dormitories and Commons.

The application on the following page is to be filled in completely and sent to the Director of Dormitories and Commons, University of Wisconsin, Madison, Wisconsin. It must be accompanied by a deposit of $10.00, made payable to Dormitories and Commons.

If you wish a receipt for the deposit, enclose a stamped, self-addressed envelope for its return.

THE UNION BUILDING

In the Union the University provides a variety of dining services for students operated on a non-profit basis and under the supervision of trained dietitians. The combined dining rooms in the Union accommodate 3,500 students a day; The Refectory, the largest room, serves three meals daily, cafeteria style; Tripp Commons serves a la carte and table d'hote meals at noon and the Georgian Grill offers the same service at night; the Rathskeller provides light lunch service for men at all times with the same service offered to women and men in the Paul Bunyan Room; private dining rooms are available for group dinners. Every type of dining preference is met by the Union and costs are very low.

THE UNIVERSITY OF WISCONSIN

DEPARTMENT OF DORMITORIES AND COMMONS

APPLICATION FOR ROOM IN MEN'S AND WOMEN'S RESIDENCE HALLS

Academic Year 19____19____. Will enter (1st semester) (2nd semester)

Name (Last name first) Date

Street address

City State

Choice of room:

Hall Preferred	Type of Room Preferred
1._____	1._____
2._____	2._____

I should like to room with_____

(The person you name should request you for a room-mate. If no one is named, it is assumed that you will accept the person assigned by the Department.)

I shall be a Freshman_____ Sophomore_____ Junior_____ Senior_____ Graduate_____

I expect to major in_____

Because of the high percentage of double rooms and our desire to provide happy arrangements for all, the following information will be helpful:

Age_____ Race_____ Nationality_____

Religion or Denomination_____

If you have lived in a University of Wisconsin dormitory before, state which one and when:_____

If you have attended any other college or university, indicate which one and when:

THE UNIVERSITY COOPERATIVE HOUSES

COOPERATIVE HOUSES FOR MEN. The University owns and operates five cooperative houses for men located in the first block east of the campus near the library, the Wisconsin Union, the gymnasium, student churches, the lake, tennis courts, and the business district. Together they accommodate 120 men.

The purpose of the cooperative houses is to furnish room and board of excellent quality at a minimum cost. The houses are comfortably furnished and well heated and lighted. A large living room in each house affords a place for good fellowship. Study hours are observed in accordance with university recommendations.

The actual cost of board and room is paid by the student. Payments are made in advance during the semester amounting to the estimated cost for that period. At the end of the school year a refund is made of any amount paid in excess of the actual cost. The cost last year was $265.25. The contract for room and board is for the entire academic year. To keep costs down each student cares for his own room.

The food served is excellent in quality and ample in quantity. A well balanced diet is served at all times.

Students living in the cooperative houses have their own organization called "The Badger Club." They plan and carry out their own social, athletic, and other activities.

The general management of the houses is under the direct supervision of experienced managers employed by the University.

Requests for information should be addressed to the House Manager, U. W. Men's Cooperative Houses, 819 Irving Place.

THE BABCOCK HOUSE, a cooperative house for men students in the College of Agriculture, is but two blocks from the University campus. Managed by an upperclass student in Agriculture, who confers with a faculty counseling committee, this house provides board and room for the student at a cost of $185 to $200 per year. Residents of the house, approximately 38 in number, do a certain amount of work each day in order that living costs may be kept low. Further information may be secured by writing to Assistant Dean I. L. Baldwin, College of Agriculture, Madison, Wisconsin.

COOPERATIVE HOUSES FOR WOMEN. Two cooperative houses for undergraduates offer inexpensive accommodations for women students who must minimize expenses. Tabard Inn, founded in 1919, is three blocks from the campus; Anderson House, founded in 1921, is one block from the campus. Each house has a capacity of 19 and is operated by its house officers together with the University Women's Housing Corporation. These houses provide pleasant homelike conditions at the lowest cost consistent with good living. For further information address the office of the Dean of Women. Cost of room and board for the year is approximately $285.

SPECIAL INTEREST HOUSES

Special interest houses open to women for both room and board include La Maison Francais and Das Deutsche Haus, operated under the auspices of the departments of French and German respectively. Both men and women rooming outside may take their meals at these houses. For full information write to the office of the Dean of Women, or directly to the department of special interest.

ROOM AND BOARD IN MADISON

Students who do not live in residence halls or special houses operated by the University, may obtain rooms in approved rooming houses, the Y.M.C.A., the various fraternity or sorority houses. Langdon and Ann Emery Halls are privately owned but are subject to university regulations. Lists of approved houses for men and women may be obtained from the Dean of Men and the Dean of Women respectively.

Houses for undergraduate women listed by the Dean of Women have been inspected by a member of her staff, and although responsibility cannot be assumed by the Univer-

sity except for the university dormitories, cooperative houses and special interest houses, all houses listed meet the established standards and are believed to be suitable homes for women students. They accommodate only regularly enrolled undergraduate women. In most cases, approved houses for undergraduate women offer room only. A few houses provide board also and several houses are equipped with student kitchens. The minimum period of room rental is one semester and houses offering board usually require a year agreement. Students should make sure when renting whether the housemother expects a semester or a year agreement. Permission to live in houses not on the approved list is given by the Dean of Women only in exceptional cases, and such permission must be obtained before the student engages a room.

A new service for graduate women is announced by the office of the Dean of Women. In addition to the usual list of rooms in private homes, seven houses with capacities ranging from four to eighteen have been reserved for graduate women exclusively. Four of these houses are located one block or less from Lathrop Hall. All of them have been inspected and meet the standards set by the University. The convenience of proximity to the campus, the Memorial Union, and the cooperative dining clubs, as well as the social advantages of group living will be welcomed by graduate women.

Lists of approved lodgings for men are prepared and distributed by the Dean of Men, 124 Bascom Hall. Each student who is searching for lodgings should call at the office for one of these lists and a map of the city to facilitate his search. Approved houses for men are inspected annually and are required to conform to a set of minimum standards stated by the Committee on Living Conditions and Hygiene, as well as to the safety codes of the city. Men are strongly advised but not required to take lodgings in approved houses. Those who take lodgings in unapproved houses do so entirely at their own risk. In order to cater to a diverse group of varying economic status, a list of approved houses must offer rooms that differ widely in quality and in price. The student in search of a room should, therefore, look for a definite correlation between quality and price. The university approval of the house indicates that it complies with the above standards and that the landlord or landlady cooperates with the University. The University does not, however, attempt to regulate prices, and the student should make his own bargain intelligently.

The unit of rental is one year in all dormitories and cooperative houses. Rooms in private houses are rented by the semester. Women students may not move during the semester without permission of the Dean of Women. Unless a definite agreement is made for a shorter period, a student is responsible for the full semester's rent. The Dean of Men recommends the practice of making agreements for rooms in writing and furnishes standard blanks for that purpose to all approved houses for men.

Students whose health makes it necessary for them to have a special diet may obtain such services at a reasonable cost at a special privately operated dining room. Further information may be secured by writing to the Dean of Men or the Dean of Women.

STUDENT LIFE

THE WISCONSIN UNION

Much of the life and activity of students outside the classroom is concentrated in the University's community center, a splendid memorial building erected and equipped at a cost of $2,500,000, largely through the generosity of more than 19,000 students, alumni, faculty, and friends of the University. Among the physical facilities of the Union are: cafeteria, large and small dining rooms, grill room, and lunchrooms; rooms for games, music, committee meetings, and assemblies; quarters for student publications and clubs; combined ballroom and banquet hall; library; art galleries; spacious lounge; barber shop; writing room; checkrooms; alumni offices; and lodgings for transient alumni and parents of students. Recently there has been added to the above facilities an extensive community-center type theater wing which provides an auditorium seating 1,300 persons for dramatic performances, concerts, lectures and debates, and motion

pictures; a small laboratory theater seating 168 for experimental drama, meetings, musicales, and radio drama; theater shops and craft shops, photography darkrooms; lounges with kitchenettes; bowling alleys and game rooms; radio studios; and an outing headquarters. By virtue of this wide range of facilities, the Union opens to the university community heretofore unequalled opportunities for social gatherings of all types.

The student house committees working with the Union staff, provide students with countless social and cultural functions in the building which are free; it is unnecessary, therefore, for a student to budget very much money for recreation at the University. Included among the regular free Union programs are: open houses, Sunday concerts by well-known artists, weekly moving pictures, weekly matinee dances, weekly coffee hours, open forums, art exhibitions and lectures, game tournaments, dancing lessons, art and hobby classes, winter sports parties and skiing instruction, women's teas and men's stags, and phonograph symphony concerts.

Upon registration and payment of his or her semester fees, including an amount of five dollars set aside for the maintenance and operation of the Union building, each student automatically becomes a member of the Union and is entitled to all the privileges of the building during the semester. Life members of the Union (students who have paid a total of fifty dollars in Union fees or by subscription) are exempt from further payments and are accorded the privileges of the building for life.

The Wisconsin Union is the organization of all men and women students, created to operate the Memorial Union Building and to provide a cultivated social program and a common life for its student, faculty and alumni members.

The central governing body of The Wisconsin Union is the Union Council, consisting of eight men and women student members and six alumni and faculty members, all elected or appointed by the bodies of Union members they respectively represent. The Council guides the activities of approximately two hundred student leaders serving on Union house committees.

The Union thus undertakes not only the integration of a diverse student population and the enrichment of the hours outside the classroom, but also the furtherance of student self-government and social education.

STUDENT GOVERNMENT

The Wisconsin Student Association has been organized to discharge both the administrative and legislative duties of student self-government. Its work is supplemented by the social and cultural program of the Wisconsin Union, official inter-collegiate relations and other matters subject to faculty control, and affairs concerning women students exclusively.

The Wisconsin Student Association is governed by a board of directors elected by the student body in the spring of each year, composed of 16 members, 11 men and 5 women and the president of the board is president of the Student Association. Affairs concerning women only are under the jurisdiction of the Women's Self-Government Association described in a following section.

The Student Board committees concern themselves with dances for the student body, an orientation program for freshmen and transfers, a winter sports carnival, parents weekend, vocational information, a second-hand text book exchange, a student public relations committee, house programs, and referendums and polls of campus opinion.

Legislative matters are referred by the Student Board to the Men's House Presidents Council and the Women's House Presidents Council. These bodies are composed of the presidents of all the men's and women's organized houses, and meet several times a year, either in sections or as a unit, to carry out business and to register the opinion of the members of their houses on problems of general campus interest.

The Men's House Presidents Council is subdivided into the Dormitory Council, made up of the presidents of all the men's dormitory units; the Inter-fraternity Council, made

up of representatives from all the fraternities; and the Lodging House Council, made up of the presidents of all the organized rooming houses. Affairs concerning the members of one sub-group only are directed by the separate Councils or by their administrative boards. The Presidents of the three sub-groups meet together with a chairman from the Student Board to form the Men's Administrative Committee and to determine policy for the group as a whole. The budget for the triad comes from the Student Board, but each group has an additional budget of its own for its private needs.

Inter-house discussions, debates, athletics, parties and smokers are the direct concern of the Men's House Presidents Council, while matters related to house rules, rushing, house dues, and intra-group spirit are adjusted by the separate Councils and their Boards.

It is the responsibility of the house presidents, both men and women, to keep the houses informed and to bring from the houses suggestions and criticisms pertaining to the work of the Student Board and its committees.

Women's Self-Government Association. Every woman student in the University is automatically a member of the W.S.G.A. The object of the Association is, in its own words, "to regulate all matters pertaining exclusively to the undergraduate women of the University except those which fall under the jurisdiction of the faculty; to further in every way the spirit of unity among the women of the University; to increase their sense of responsibility towards each other; and to be a medium through which the social standards of the University can be made and kept high." Each dormitory, cooperative house, sorority house, special interest house, and each approved house where more than three girls reside, has one or more representatives on the Women's House Presidents Council, discussed above.

The Administrative Committee of W.S.G.A. is composed of the five women representatives on the Student Board, ex officio, who are the officers of the Committee and of the Association; the four class representatives; the elections, district, and judicial chairman; and such other permanent or temporary chairmen as are found necessary to the conduct of business. The Administrative Council formulates and directs such policies and plans as shall further the best interests of the women of the University. The Women's House Presidents Council, under the guidance of a District Committee elected from among the members of the Council, forms a larger voting body to legislate on all house rules and problems.

The Association cooperates with the Women's Affairs Committee of the Wisconsin Union in providing social contact through group activities for all women.

PERSONNEL SERVICES

The faculty committee on Student Life and Interests concerns itself with all organized student activities. Its chairman, the Dean of Men, its vice-chairman, the Dean of Women, and its secretary, the Assistant Dean of Men, are available for correspondence and consultation regarding student affairs at all times. The Dean of Men and his assistant will gladly confer with parents or guardians regarding individual men students, and they are anxious to get in touch with boys who are contending against illness, discouragement, financial worries, or other obstacles to successful work in college. The Dean of Men contributes to the Freshman Handbook several sections of information and advice for freshmen, which prospective students will find useful as introductory to college life. His office also issues mimeographed lists of lodgings and rooming houses for men students with detailed information. The Y.M.C.A. publishes a booklet of useful information on many matters of interest to students.

The academic and social welfare of women students is under the direct guidance of the Dean of Women whose offices are located in Lathrop Hall, a building designed for the use of women students. The Dean and her staff of assistants invite correspondence with parents and guardians of women students and cooperate with them in matters affecting their welfare. For the benefit of those women who cannot be accommodated in

residence halls, the office of the Dean of Women prepares a list of approved houses for women students. Students are urged to consult the office of the Dean of Women concerning rooms and are invited at all times to make use of the facilities of this office.

In addition to the offices of the Deans of Men and Women there are many other agencies for aiding the student in his life and work in the university community. Among these may be mentioned the academic deans, the Student Health Department, the Bureau of Guidance and Records, the placement committees, the Wisconsin Union, the dormitories and lodging houses, the Christian Associations, and others. In order to bring all these agencies into a better working organization, there has been formed a Personnel Council whose aim is to coordinate and develop all this work. The Assistant Dean of Men serves as secretary of this Council. Students who encounter perplexities or difficulties in their work are urged to make use of the facilities in the office of the Personnel Council. Those in charge are particularly anxious to aid students who do not know how to make the direct contacts for information and guidance concerning vocational aptitude testing, extra-curricular activities, health, social adjustments, scholastic difficulties, and the like.

FRESHMAN ELIGIBILITY

Freshmen are expected to devote their energies largely to the requirements of their respective courses of study and are therefore permitted to engage in a limited variety of so-called "outside" or "extra-curricular" activities. Wholesome recreation of all sorts, especially participation in athletic activities, is always encouraged, and extensive facilities are provided for such purposes. Freshmen may represent their house, class or college in intramural athletic contests; they may take part in certain debating and oratorical events; and those who are successful in their academic work during their first semester may, *in their second semester, try out for* positions on publication staffs and in other enterprises for which they hope to be eligible in their sophomore year. This does not preclude membership in purely social or religious organizations, debating societies, or such musical groups as the orchestra, band, or glee clubs. The eligibility rules and regulations governing social life are published in full in the time table of classes, a copy of which is given to each student when he registers.

Freshmen may be "pledged" to join a fraternity or sorority during their first semester, but they may not be initiated until their second semester, and then only provided they have been successful in carrying a full program of academic work and are not under any sort of probation. Freshmen may take their meals at the fraternity or sorority to which they are pledged and, if the scholastic average of the Chapter is satisfactory, freshmen, in limited numbers, may be invited to live in the chapter house during their first semester. "Greek-letter societies" is one of several topics discussed in the Freshman Handbook, copies of which are sent to each prospective freshman soon after his credentials have been received and he has been notified of his acceptance. Fraternities are required to maintain chapter scholastic averages at least equal to the general requirement for graduation, namely one grade-point per credit (or a grade-point average of 1.00, with 3.00 as the highest possible average).

STUDENT HEALTH

The Department of Student Health is established for the protection and care of the health of the students attending the University. An excellently equipped Infirmary for those needing hospital care, and a Student Clinic for ambulatory cases seeking health advice or medical consultation is maintained. A part of the semester fees paid by the student goes into a fund for the support of the Infirmary, and entitles him to hospitalization and general nursing care during the period covered by the fee, for illness arising during this period.

The medical staff of the Student Health Service is supported by general university

the interests of the University as a whole. In return for this individual medical care, students are expected to cooperate through observance of health regulations relating not only to personal health but also to that of the university community.

The University does not attempt to provide the services of surgical specialists, dental care, special nursing or other unusual treatment as a regular part of its health program.

The following constitute some of the more important fields of the Student Health Service.

PHYSICAL EXAMINATION. A complete physical examination is required of each new student upon admission to the University. Examinations are held at the beginning of each semester. The student is required to present himself punctually at the hour allotted, assured that these appointments hold precedence over classwork. Findings are recorded and filed. In case further study of the physical condition is deemed advisable, the student is requested to report again. Based on the medical findings, recommendations may be made to administrative officers in charge of academic work or requirements in physical education or military science, suggesting individualized health programs, corrective measures, and occasionally special class schedules.

OFFICE CALLS. The offices of the members of the Student Health Service occupy the first floor of the Infirmary, which has corridor connections with the main building of the Wisconsin General Hospital, some of whose facilities supplement those of the Health Service. Regular office hours are from 8 a.m. to 12 noon and 1:30 to 4:30 p.m. each week day except Saturday afternoon, and from 9:30 to 10:30 a.m. on Sunday. Whenever possible these hours are to be observed and appointments made in advance, either personally or by telephone. Physicians are available at all times, night and day, for emergency care.

HOUSE CALLS. Members of the staff of the Student Health Service will make house calls on students prevented by illness from visiting the clinic, such calls being primarily for the sake of diagnosis. Should prolonged bed care be needed, the student will be admitted to the Infirmary if he desires medical care through university facilities.

HOSPITAL CARE. The Student Infirmary has one hundred beds available for hospital care. It offers special isolation facilities and is thus of value in preventing communicable diseases from spreading unchecked. Admission to and discharge from the Infirmary are at the discretion of its medical staff.

SICKNESS EXCUSES. Excuses for absence due to illness must be applied for within one week after return to classes and are issued or approved by the Student Health Service.

SOCIETIES AND PUBLICATIONS

FORENSICS AND DRAMATICS

The men's literary societies are: Athena, organized in 1850, and Hesperia, organized in 1854. These societies are interested principally in debating. The women's literary societies are: Castalia, organized in the early years of the University, and Pythia, organized in 1902. Most of their time is devoted to more general literary pursuits and not extensively to debating.

The University is a member of the Western Conference Debate League composed of Northwestern University, Purdue University, and the Universities of Michigan, Illinois, Minnesota, Iowa, Indiana, Ohio, and Wisconsin. Conference debates are scheduled regularly and additional intercollegiate debates are arranged from time to time.

The David B. Frankenburger Oratorical Contest is open to sophomores, juniors, and seniors in good standing. The winner receives a prize of $100 provided by the Wisconsin Alumni Association. The University is a member of the Northern Oratorical League composed of Northwestern University, Western Reserve University, and the Universities of Iowa, Michigan, Minnesota, and Wisconsin. The annual contest of this league is held in rotation at the several member institutions.

Positions on the university debating teams are won in open competition, both undergraduate and graduate students in good standing being eligible. Participation in intercollegiate debating or oratorical contests makes a student eligible for membership in the Wisconsin chapter of the national honorary forensic fraternity, Delta Sigma Rho, which, together with the Forensic Board, represents the organized student control of forensic affairs in the University.

The general dramatic club, Wisconsin University Players, is composed of both men and women and is open to all students who upon tryouts show either sufficient dramatic talent or some special ability in the fields of production or management. The club gives several formal productions during the year in the Wisconsin Union Theater. They also give a series of laboratory plays as open meetings which the public may attend.

Haresfoot Club is a men's dramatic organization devoted to the annual production of an original musical comedy in which all the roles are taken by men.

MUSICAL ORGANIZATIONS

The University Orchestra is open to all students and has a membership of about eighty players. The finest examples of symphonic music are studied and performed. Students who qualify may receive one or two credits.

The Second Orchestra is open to all students who through lack of experience or because of conflict do not play in the regular University Orchestra. The fundamentals of orchestral playing are stressed in the study of the easier types of music. Practical experience in conducting and interpretation is offered. No credit.

The University Bands consist of two hundred men divided into a Concert Band, a First Regimental Band, and a Second Regimental Band. The Concert Band devotes its efforts to the study and performance of the higher forms of music. The Regimental Bands serve as a training school for the Concert Band and serve the Military Department at official functions. The University Bands also play for University convocations and cooperate with the Athletic Department at games. Each organization rehearses three times weekly. Underclassmen may elect Band to fulfill the physical activity requirement. Upperclassmen who are members of the Concert Band and selected members of the Regimental Bands who remain for duty at Commencement receive a stipend of thirty dollars. Membership in Band is determined by tryout. Members of the University Bands may receive one credit beginning with the sophomore year.

The University Chorus, an organization of fifty voices, studies and performs masterpieces of choral literature. Membership is on a competitive basis and is open to any student in the University. The course may be taken for one credit.

RELIGIOUS ORGANIZATIONS

Prominent among the religious organizations of the University are the Young Men's Christian Association and the Young Women's Christian Association. These organizations maintain secretaries who devote their entire time to religious, social, and philanthropic work among the students. Nine student pastors supported by eight religious denominations, each with its own student organization, cooperate with the secretaries and promote religious work in the student body in a systematic way.

SOCIAL ORGANIZATIONS

The social life of the undergraduate finds expression in about ninety fraternities, sororities, and other house groups, and in a great diversity of clubs and societies, many of them organized principally around professional or other special interests but usually embodying a distinct element of comradeship as well. To catalog even the more important of these organizations would serve no very useful purpose, inasmuch as the student, if he has the time and other requisites for membership, usually has no difficulty in making the necessary contacts with organizations of the sort in which he may be interested.

STUDENT PUBLICATIONS

Student publications include the *Daily Cardinal,* a morning newspaper published in its own printing plant on the campus; the *Octopus,* an illustrated humorous monthly; the *Wisconsin Engineer* and the *Wisconsin Country Magazine,* monthlies edited and managed by the students of the College of Engineering and the College of Agriculture and containing material of professional interest; and the *Badger,* a comprehensive and elaborate annual issued under the auspices of the senior class. Positions on the editorial and business staffs of these publications are ordinarily open to all qualified students above the rank of freshman; appointments are made by the various boards of control on the basis of experience and ability.

HONORS AND PRIZES

Excellence in scholarship is recognized and rewarded in many different ways during various stages in a student's progress. The first recognition may come during the freshman year by election to one of the freshman honor societies, Phi Eta Sigma for men and Sigma Epsilon Sigma for women. A freshman in any college who carries a normal class schedule and who establishes a grade-point average of 2.5 or above is eligible for membership. Men are automatically elected to membership in Phi Eta Sigma on the basis of their first-semester records (or the record for the year, if the first-semester average should not quite meet the standard.) Women are eligible for Sigma Epsilon Sigma after the completion of a year's work. These two organizations have the common purposes of setting a standard of excellence in scholarship and of encouraging purposive, consistent effort early in the student's career, when study habits are being formed.

There are many honor fraternities which extend recognition to upperclassmen either on the basis of scholarship alone, or of scholastic excellence plus certain qualities of character and leadership. The various colleges, schools, courses, and departments have their special honor societies, membership in which is highly prized. One society, Phi Kappa Phi, elects its membership from the Universty at large.

University Honors. The several colleges recognize high scholastic attainment during the freshman and sophomore years by the publication of sophomore honors and high honors, requiring approximately 2.25 and 2.75 points per credit respectively for the work of the first two years, based on normal class schedules. Senior honors and high honors are awarded in like manner for the work of the last two years in all colleges except engineering. In the College of Engineering the whole record, with a few exceptions, is used.

The University further recognizes high scholastic attainment by conducting a special "Honors" program as a part of the "Parents Week" program in May.

Cash Prize Awards. Upon proper application involving evidence of need, freshmen whose academic work has been superior may be awarded cash scholarships, as described in greater detail under the heading Loans and Scholarships. Other cash awards in the form of prizes and scholarships are available to students, more particularly upperclassmen, with special qualifications. Among those available to freshmen may be mentioned the Lewis prize of $25 awarded annually to the freshman English student who writes the best theme, as determined by a committee of instructors; and the Vilas prizes of $50 and $25, awarded annually for the best undergraduate essays submitted in open competition. The winner of the David B. Frankenburger Oratorical Contest at the University each year is awarded a cash prize of $100. The winner of this contest and six members of the intercollegiate debate squad are annually awarded Vilas gold medals.

Two cash prizes are awarded to seniors on the basis of qualities developed during their college careers. The Glicksman prize is awarded to a senior woman "who has been outstanding in intellectual attainments and has been an example of initiative, resourcefulness and unselfish devotion to high purpose." The Herfurth prize is awarded to a senior man "who shows greatest evidence of initiative and efficiency."

HONORARY FRATERNITIES. The honorary fraternities with the dates of their establishment at Wisconsin are:

Alpha Epsilon Iota (Women's Medical), 1926
Alpha Kappa Delta (Sociology), 1922
Alpha Omega Alpha (Men's Medical), 1926
Alpha Zeta (Agricultural), 1905
Artus (Economics), 1912
Beta Gamma Sigma (Commerce), 1913
Chi Epsilon (Civil Engineering), 1924
Delta Phi Delta (Art), 1921
Delta Sigma Rho (Forensics), 1900
Eta Kappa Nu (Electrical Engineering), 1910
Gamma Alpha (Graduate Scientific), 1910
National Collegiate Players (Dramatic), 1919
Order of the Coif (Law), 1907
Omicron Nu (Home Economics), 1915
Phi Beta Kappa (Academic), 1898
Phi Eta Sigma (Men's Freshman Scholastic), 1927
Phi Kappa Phi (General), 1919
Phi Lambda Upsilon (Chemical), 1906
Phi Mu Alpha Sinfonia (Men's Musical), 1921
Phi Sigma (Biological), 1917
Pi Lambda Theta (Education), 1931
Pi Tau Sigma (Mechanical Engineering), 1916
Rho Chi (Pharmaceutical), 1925
Scabbard and Blade (Military), 1905
Sigma Delta Epsilon (Women's Graduate Scientific), 1921
Sigma Delta Pi (Spanish), 1931
Sigma Delta Psi (Physical Education), 1917
Sigma Epsilon Sigma (Women's Freshman Scholastic), 1927
Sigma Sigma (Medical), 1908
Sigma Xi (Graduate Scientific), 1907
Tau Beta Pi (Engineering), 1899
Theta Sigma Phi (Women's Journalistic), 1910

ADMISSIONS

METHODS OF ADMISSION

There are four general methods by which admission to undergraduate standing in the University may be obtained; in each case the general requirements for admission (see next page) must be fulfilled.

1. By presenting a certificate of graduation from an accredited four-year or an accredited senior-high school, with the recommendation of the principal (see page 25).
2. By passing entrance examinations (see page 27).
3. By qualifying as an adult special student (see page 27).
4. By submitting evidence of studies successfully pursued in another institution of higher learning (see page 28).

By corresponding with the University Registrar, prospective freshmen and adult special students may learn at any time of year whether or not they have the necessary qualifications for admission and upon what basis they may be admitted. Prospective students who have had some college work should correspond with the Advanced Standing Committee (see page 28). Students may enter the University at the opening of either semester or of the summer session, but all credentials should be filed sufficiently in advance of the date chosen to permit the authorities to pass upon them and to issue certificates of admission. Candidates for admission in September are responsible for having their credentials filed by the first of August. The credentials must in every case include a complete record of all previous secondary school and advanced work.

FRESHMAN PERIOD

All freshmen are required to be present at the University on the Wednesday preceding the beginning of instruction and to remain throughout the week. The period will be devoted to registration, conferences with advisers, physical examinations, aptitude tests, special educational examinations, assignments to classes, lectures and discussions on subjects of importance to new students, and a general introduction to university life.

Because attendance throughout the entire period is required, it is essential that all details connected with admission be attended to as early as possible. Students who graduate from high schools or academies in June should inform their principals sometime in May or early June of their intention to attend the University in the fall, so that the necessary certificates may be prepared and other important data furnished to university authorities. No guaranty of admission can be made to prospective students whose credentials are not in the hands of the Registrar by August first. So far

as possible, candidates who will need to take entrance examinations should avail themselves of the June examination period; this means that candidates with dubious records and those from non-accredited schools outside the State would do well to correspond with the Registrar before June first.

It is advisable that rooms for the semester be secured in advance of Freshman Period so that there will be no confusion, uncertainty, or waste of time during the days when attention should be centered on "getting started."

REQUIREMENTS FOR ADMISSION BY CERTIFICATE

I. The usual means of gaining admission to the University is by presenting a certificate of graduation from an accredited four-year or an accredited senior-high school showing satisfaction of the underwritten requirements and bearing the principal's recommendation of the candidate's fitness for college.

Graduates of four-year non-accredited schools in Wisconsin who have satisfied the full requirements for admission to the University may be admitted on probation, without examination, upon recommendation of the principal.

1. DEFINITIONS. A unit represents a norm of five class-periods per week in one field of study for a school year of at least 36 weeks. Two laboratory periods in a science or other subject are considered equivalent to one class period. In subjects not usually taught throughout an entire school year, a unit may be constructed by adding a semester each of two related subjects.

Except in foreign language (see below), a *major* consists of three or more units in one field of study and a *minor* consists of two units in one field of study.

"Unrestricted" admission to the University is admission which opens to the student all colleges, courses, and fields of study to which freshmen are eligible and insures full freedom of choice among all the college majors and fields of specialization.

"Restricted" admission opens to the student such colleges, courses, and fields of specialization as do not require high-school mathematics as background. It does not give admission to the College of Engineering. It may give admission to the College of Agriculture and the Course in Chemistry, but the deficiency must be removed at an early date, in accordance with the conditions imposed by the Office of Admissions. It does not permit the student to major or specialize in chemistry, commerce, economics mathematics, pharmacy, pre-medicine, medical technology, philosophy, political science, psychology, American institutions, foreign relations or sociology, or in any of the other natural siences including physical geography and geology, or to graduate from the School of Education with a major or minor in any of these fields until the deficiency has been removed. (See paragraph 6 below.)

2. Sixteen units are required of a graduate of a regular four-year high school for admission as a regular student of any college or courses open to freshmen.

3. Admission of such graduate shall be based upon: (a) the completion of two majors and two minors selected from four of the fields in Group A (below); one of these majors shall be English and Speech (unless the candidate offers a minor in foreign language, in which case a minor in English and Speech will suffice); and for "unrestricted" admission one major or minor shall be in mathematics, i.e., one unit of algebra and one unit of plane geometry, with an additional half-unit of algebra recommended in the case of those who seek unqualified admission to the College of Engineering; and (b) the completion of the additional units necessary to make a total of sixteen units selected from Group A and Group B (below), with the provision that not more than six of the sixteen units may be presented from Group B. Pupils planning early in their high-school career to enter the College of Letters and Science or the College of Engineering are advised to present all sixteen units from Group A. Until further action by Faculty and Regents not more than two units in advanced applied music or, alternatively, in art will be accepted under Group A. (Broadly speaking

advanced applied music may be provisionally defined as applied music based upon two years of preparation in band or orchestra, or equivalent preparation in chorus. The units in art shall be based upon adequate preparation in free-hand drawing in the grades or an equivalent.)

4. Graduates of high schools which maintain a senior-high-school division shall present twelve units from this division to include: (a) one major and two minors selected from three of the fields in Group A or four minors selected from four of the fields in Group A; one major or minor shall be in English and Speech, and for "unrestricted" admission one major or minor shall be mathematics (as described above) unless, before entering the senior-high school, the entrant has completed one of the two units in mathematics specified in the preceding sub-section, in which case the completion of the second unit will suffice, or they may combine a unit or units from the last year of junior-high school with a unit or units from the senior-high school and satisfy the major and minor requirements of the four-year high school instead of meeting the requirements of the senior-high school; (b) The remaining units shall be selected from Group A and Group B. (See advice in preceding sub-section.)

FIELDS OF STUDY

GROUP A

English and Speech	Mathematics
Foreign Language	Natural Sciences
History and the Social Sciences	Advanced Applied Music or Art

GROUP B

Agriculture	Industrial Arts
Commercial Subjects	Mechanical Drawing
Home Economics	Optional (2 units)

5. The foreign languages accepted for admission are French, German, Greek, Hebrew, Irish, Italian, Latin, Norse, Polish, and Spanish. If foreign language is offered under Group A it must consist of at least a minor in one language. Three or more units in one foreign language or two units in each of two foreign languages shall constitute a major. A single unit of foreign language, (i.e., one unaccompanied by a foreign language minor) may be offered as an optional subject under Group B. (Four units in one foreign language are preferable to two units in each of two foreign languages.)

6. "Restricted" standing may at any time at the option of the student be changed to "unrestricted" standing by the mastery, subsequent to high-school graduation, of the content of high-school algebra and plane geometry by private study or tutoring as shown by the ability to pass the entrance examinations in the subject, or by correspondence study. It is expected that the change from "restricted" admission to "unrestricted" admission will be made during the first two years, if it is to be done at all. The University will not provide resident instruction in this preparatory work.

II. Graduates of Wisconsin high schools need not meet the above requirements if, on the combined basis of rank in graduating class and aptitude and achievement tests satisfactory to the University, they stand in the upper twenty-five per cent of the average freshman class entering the University and are recommended for college by the high-school principal; but their admission will necessarily be "restricted" unless their preparation includes the two units in mathematics. This does not apply to candidates for admission who have graduated from schools outside the state of Wisconsin.

SPECIAL REQUIREMENTS

COLLEGE OF AGRICULTURE. For admission to the Farm Short Course and Dairy Courses students must be at least sixteen years of age and must have a good common school education. Candidates for the Winter Dairy Course are required to have at least six months of experience in a creamery or cheese factory before being admitted. Candidates for admission to these Short Courses need not meet the general requirements for admission to the University.

COLLEGE OF ENGINEERING. Students planning to enter this college are advised to include in their high-school work the following subjects: 1½ or 2 units of algebra, 1 unit of plane geometry, ½ unit of solid geometry, 3 units of English, 2 units each of science and history, and 2-4 units of foreign language.

SCHOOL OF COMMERCE. Two full years of work in one of the General Courses in the College of Letters and Science, or the equivalent thereof, including four credits in elementary economics, are required for admission. Students are strongly advised to include also seven credits in accounting, eight credits in mathematics and six in geography.

SCHOOL OF EDUCATION. The regular university entrance requirements apply to students entering the special courses (Art Education and Physical Education). For others, two full years of work in the College of Letters and Science are required for admission. (See bulletin of the College of Letters and Science, or bulletin of the School of Education, for Pre-Education sequences).

SCHOOL OF JOURNALISM. For admission to this school, two full years of work toward the B. A. degree in the College of Letters and Science, or the equivalent thereof, are required, ordinarily including the special studies of the Pre-Journalism sequence as noted under that heading.

LAW SCHOOL. Candidates for the degree are required to present for admission either a bachelor's degree, or the equivalent of three full years of work, with a grade-point average of at least 1.3, in the College of Letters and Science or in the College of Engineering. Students entering from the College of Engineering are required to include at least six credits from the field of social sciences. A limited number of students who have reached their majority and who have the general entrance requirements stated above and two years of college work may be admitted as special students.

LIBRARY SCHOOL. Requirements are given in detail in the special bulletin of the Library School, a copy of which may be obtained upon application to the Director.

MEDICAL SCHOOL. Three full years of work in the College of Letters and Science are required for admission, including the special subjects as set forth in detail in the College of Letters and Science bulletin.

SCHOOL OF MUSIC. Besides the general entrance requirements special tests are given in music dictation, ear and rhythm, music fundamentals, music background, sight singing and instrumental performance.

FOREIGN LANGUAGES

Although foreign language is not definitely required for admission to any course, failure to present it will curtail the student's free elections. Students who desire to absolve their foreign-language requirements by passing attainment examinations should acquire a considerable degree of proficiency in their high-school languages. (See bulletin of the College of Letters and Science, for statement concerning foreign-language attainment examinations). Those who expect to enroll in any of the following-named courses are strongly advised to prepare themselves, at least partially, in foreign language as indicated:

COLLEGE OF LETTERS AND SCIENCE

Course in Chemistry—2 units of French; 2-4 units of German
Course in Commerce—2-4 units (B. A. sequence)
Course in Hygiene—2-6 units
Pre-Medical training—2 units of Latin; 2-4 units of French or German
Medical Technology—2-4 units of French or German
Pharmacy Course—2 units of French; 2-4 units of German
General Course leading to the Bachelor of Arts degree—2-4 units
Course in Journalism—4 units of French, German, Latin, or Spanish, with a possible addition of 2-4 units of another language.
Course in Humanities—4 units of Latin, and 2-4 units of Greek, French, or German
Course in Music (Bachelor of Music degree)—2-3 units of French, German, or Italian

COLLEGE OF AGRICULTURE

Course in Home Economics—2-4 units in one language or 5 units in two

No foreign language is definitely required for the Bachelor of Philosophy degree, but if the student has completed four years of one language in high school he may take an attainment examination, success in which will relieve him of certain other requirements for the degree.

Foreign language is not definitely required of students enrolled in the School of Education; however, those who elect the foreign-language option will (except in Art Education) find it distinctly to their advantage to be prepared for foreign-language attainment examinations.

ADMISSION UPON CERTIFICATE

FROM WISCONSIN SCHOOLS

Graduates of accredited four-year or accredited senior-high schools may enter the University, without examination, upon presentation of a certificate showing the satisfactory completion of the required units (see requirements for admission by certificate, page 25) and bearing the recommendation of the principal. Only the form prepared by the University is acceptable, a supply of which may be obtained from the Registrar by the principal. The completed certificates should be returned to the University before August 1.

Before applying for admission to the University, graduates are urged to confer with their principals, seeking information as to the significance of ratings in the college aptitude test given to all seniors in Wisconsin high schools. This rating, combined with the high-school record, is valuable insofar as it enables the principal to interpret a prospective student's chance of success in college. Furthermore, by recent legislation, freshmen in the College of Letters and Science who rank above the 92 percentile on this test and who are in the highest quarter of their high-school class may elect one sophomore subject in each semester of their first year. Those who have not taken the test must rank in the upper ten per cent of their high-school class in order to be eligible for this privilege.

Graduates of four-year non-accredited schools in Wisconsin who have satisfied the full requirements for admission to the University may be admitted on probation, without examination, upon recommendation of the principal.

Any high school or academy in the State whose course of instruction covers the branches required for admission to the University may be admitted to its accredited list of preparatory schools, after a satisfactory examination by a committee of the Faculty. Upon application made by an officer of any high school or academy in the State to the Chairman of the Committee on High-School Relations, the University will examine the school with reference to placing it upon its accredited list of preparatory

schools. The examination which will be conducted by a committee of the Faculty, will cover the course of study and methods of instruction in the school. No school can be placed upon the list whose course of study is not fully equal to the four-year course for high schools recommended by the State Superintendent.

Any high school or academy with a complete four-year course which does not include foreign language may be admitted to the accredited list under the conditions stated, provided its course of instruction covers sixteen units in the subjects accepted for admission to the University.

FROM SCHOOLS OUTSIDE WISCONSIN

Graduates of secondary schools outside Wisconsin, included in the current list of accredited schools of the North Central Association, may be admitted when recommended and certified by the principal as indicated above, provided the minimum admission requirements of the University be fulfilled. The grades must average *fair* or above, and the record of the last two years in the secondary school will be given special and critical consideration.

Graduates of other secondary schools outside Wisconsin may be admitted when properly recommended and certified, provided: (a) That the school maintains, on the basis of regular inspection, accredited relationship with the state university, or other university within the State included in the membership of the Association of American Universities. The state university must maintain the same standard of admission requirements as those institutions belonging to the Association of American Universities. (b) That the minimum admission requirements of the University of Wisconsin be fulfilled as to both number of units and character of work. In such cases the character of the work submitted is interpreted to mean an average standing of *good*.

Credentials properly certified by the principal on forms provided by the University should be submitted for approval before August 1.

DEFICIENCIES IN ENTRANCE REQUIREMENTS

Graduates of secondary schools who fail to gain the recommendation of their principals because of low grades will be required to take entrance examinations in those Group A subjects in which they are deficient. A deficient grade is one lower than 77 when 70 is the passing grade of the school, or below 81 on the basis of 75 as passing.

Graduates of schools which have established a "recommending grade" will be required to take entrance examinations in those subjects in which they failed to receive this recommending grade.

Graduates who do not have the required sixteen units will take entrance examinations in those subjects in which they lack credit.

Applicants for admission who are required to take entrance examinations as indicated above must also take a college aptitude test which will be used in conjunction with the entrance examinations for determining admission.

Entrance examinations are given three times a year, in September, February, and June, as specified in the calendar; no special examinations are given. Those who are likely to be required to pass entrance examinations in order to gain admission will do well to correspond with the Registrar as soon as possible so that they may be informed early of their deficiencies and thus have ample time to prepare themselves for examination. There is likely to be less severe disappointment if candidates take the examinations in February or June, since if rejected, they still have opportunity to seek admission to some other institution.

Graduates of accredited schools whose academic subjects average less than 77 with 70 as the passing grade of the school, or less than 81 with 75 as passing, are urged not to apply for admission to the University because their chances for success in college are slight. If they are admitted it will be only on probation.

ADVANCED CREDIT

Advanced credit for high-school work may be granted to students with satisfactory average standings who present more than sixteen units acceptable for admission, provided: (a) the subjects in which advanced credit is sought are the general subjects accepted for admission to the University; (b) the work is as advanced as work given in the freshman year; (c) the course for which credit is desired be approved by the chairman of the department; and (d) the student passes a satisfactory examination at least two hours in length held at the University before or during the Christmas recess. No advanced credit will be given for work in language unless it be in excess of six units of language offered for admission, nor will advanced credit be given for less than three semester hours.

ADMISSION UPON EXAMINATION

Applicants for admission who have not been graduated from a secondary school may be admitted to the University upon passing entrance examinations in the required number and kinds of units as specified above. These examinations are given three times a year, in February, June, and September, on the dates indicated in the calendar; no special examinations of any sort are given. All candidates are expected to correspond with the Registrar before presenting themselves for examination, and all must be present at 9 o'clock on the first examination day. Candidates may divide the subjects and take the examination in two trials, but failure to pass all the subjects in two trials will necessitate complete re-examination. The Registrar will furnish, upon request, information as to the character of the examinations.

Results of College Entrance Board Examinations are accepted in lieu of passing these entrace examinations. So also are Canadian Matriculation Examinations and New York Regents.

In general, it is preferable for prospective entrants to submit to examination in February or June rather than in September, since failure at the latter date may result in a sudden change of plans at the very outset of the academic year.

These admission examinations are also open to high-school graduates who may be deficient in certain subjects and who therefore are unable to take full advantage of the certificate plan of admission.

ADMISSION ON THE ADULT SPECIAL BASIS

Citizens of Wisconsin, twenty-one years of age or over, who do not possess all of the requirements for admission and who are not candidates for a degree, may be admitted to the College of Letters and Science or the College of Agriculture upon giving satisfactory evidence that they are prepared to take advantageously, the subjects open to them. Such students are normally required to select their studies only from courses open to freshmen. If they desire to take a study to which only advanced students of these colleges are regularly admitted, they must show special preparation or aptitude for such course. This privilege of admission is granted in the College of Engineering only to students who are able, on examination, to meet all the entrance requirements in mathematics or who have completed their preparatory mathematics in the Extension Division of the University and present a certificate therefrom, duly approved by the chairman of the Department of Mathematics.

Candidates applying for admission on the above basis are required to present to the Registrar in advance of their coming an official detailed statement of their preparatory studies for evaluation and approval. They are also required to take a scholastic aptitude test under the direction of the Office of Admissions.

Students will not be admitted, save in exceptional cases, directly from the secondary schools to the status of adult specials; nor will graduates of accredited schools be permitted to enter as adult specials, since they are required to qualify for regular matriculation.

Before beginning their third year, students admitted on the adult basis must have fully satisfied all entrance requirements. When all entrance requirements have been thus absolved, such students may continue work in the University, will receive regular classification, and may be accepted as candidates for a degree.

ADMISSION WITH ADVANCED STANDING

Students from accredited colleges, normal schools, and universities, who have pursued college courses equivalent to those of the University of Wisconsin with an average standing of at least C on an A-B-C-D-Fail grading basis, and who have been granted honorable dismissal from their former institutions may be admitted to the University. Former students of such institutions can not be received as freshmen on the basis of their preparatory school records.

Applicants for admission who have had any work whatsoever in another institution of higher learning, regardless of whether or not they wish to receive credit for it, must submit complete credentials of both their high-school and college work to the proper authorities of the specific college which they desire to enter, and not to the University Registrar. Applicants who wish to enter the College of Engineering should send their records to the Dean of that College; those entering the College of Agriculture to the Assistant Dean; and all others to the Chairman of the Advanced Standing Committee. All such transcripts should be sent at least six weeks preceding the opening of the session which the student desires to enter.

Not more than one-fourth the number of credits required for a four-year course will be given for a single year's work in another institution. This maximum will be given only when the student makes an average of C or better during his first or second semester at Wisconsin. At least the senior year's work (30 credits and 30 grade-points) must be earned in residence at Wisconsin, and students can therefore expect at best not more than three years of advanced standing on transfer.

In the College of Letters and Science, freshmen are limited in their elections to English composition, foreign language, history, mathematics, natural sciences, and drawing. Students who wish to receive full credit for their freshman year at other colleges should, therefore, make up their programs from these subjects. Studies not open to freshmen at Wisconsin, such as philosophy, education, and sociology, will not be credited if taken in the freshman year at another institution.

ADMISSION TO THE SUMMER SESSION

Applicants for admission to the Summer Session who wish to work for a degree at Wisconsin must file regular transcripts as specified in the preceding paragraphs; this requirement also applies to all persons seeking admission to the Law School or the Graduate School, regardless of their intention of securing a degree.

All other summer session applicants who have not previously been matriculated at Wisconsin are required to furnish documentary evidence of good standing. For a teacher this will consist of a statement of his or her status in the school where employed signed by a responsible official of such school; for a student at another institution, an official statement of good standing; for others, appropriate statements of attainments, occupation, and purpose. These statements are to be filed in advance so that necessary permits to register can be issued.

INSTRUCTIONAL ORGANIZATION

The University of Wisconsin is organized for instruction into a number of colleges and schools which are in turn divided into departments. Certain types of work are arranged in special sequences of subjects known as curricula or courses of study. The scheme of organization is as follows:

COLLEGE OF LETTERS AND SCIENCE

Art History and Criticism
Astronomy
Botany
Chemistry
Classics (General, Latin, and Greek)
Commerce
Comparative Literature
Comparative Philology
Economics
English
French and Italian
Geography
Geology
German
History
Irish
Journalism
Library Science
Mathematics
Meteorology
Music
Pharmacy
Philosophy
Physics
Polish
Political Science
Psychology
Scandinavian Languages
Sociology and Anthropology
Spanish and Portuguese
Speech
Zoology

COLLEGE OF ENGINEERING

Chemical Engineering
Civil Engineering
Drawing and Descriptive Geometry
Electrical Engineering
Mechanical Engineering
Mechanics
Mining and Metallurgy

COLLEGE OF AGRICULTURE

A. Agricultural Division

Agricultural Bacteriology
Agricultural Economics
Agricultural Education
Agricultural Engineering
Agricultural Journalism
Agronomy
Animal Husbandry
Biochemistry
Dairy Husbandry
Dairy Industry
Economic Entomology
Forestry and Wood Technology
Genetics
Horticulture
Plant Pathology
Poultry Husbandry
Rural Sociology
Soils
Veterinary Science

B. Home Economics Division

Clothing and Textiles
Foods and Administration
Related Art

LAW SCHOOL

MEDICAL SCHOOL

Anatomy
Hygiene
Medical Bacteriology
Medical Technology
Medicine
Pathology
Pharmacology and Toxicology
Physiology
Physiological Chemistry
Radiology and Physical Therapy
Surgery
Medical Technology

SCHOOL OF NURSING

Dietetics
Therapeutics
Medicine and Surgery
Nursing
Public Health Nursing

SCHOOL OF EDUCATION

Art Education
Educational Methods
Physical Education for Men
Physical Education for Women

DEPARTMENT OF MILITARY SCIENCE

The University also maintains a strong Graduate School with advanced work leading to masters' and doctors' degrees and a Summer Session offering regular academic and professional subjects for full credit toward all degrees. The University Extension Division offers courses by correspondence which may be taken for full credit; it also operates a branch at Milwaukee where regular class instruction is given, including the freshmen and sophomore years in Letters and Science and in Engineering; and it conducts regular classes in freshman subjects, and in a few sophomore subjects, in many of the larger cities of the State.

The University offers no curricula in kindergarten work, dentistry, theology or architecture; however, the work of the freshman year in engineering is accepted by some colleges of architecture, and there is a limited amount of instruction given in certain phases of forestry by the staff of the U. S. Forest Products Laboratory, associated with the University.

DEGREES

TITLES

GRADUATE IN AGRICULTURE—Two-Year Course in Agriculture
GRADUATE NURSE—Three- and Five-Year Nursing Courses

FIRST DEGREES

BACHELOR OF ARTS—Granted in General Course and Course in Commerce
BACHELOR OF ARTS (Humanities)
BACHELOR OF ARTS (Journalism)
BACHELOR OF LAWS
BACHELOR OF LIBRARY SCIENCE
BACHELOR OF MUSIC
BACHELOR OF PHILOSOPHY—Granted in General Course and Course in Commerce
BACHELOR OF SCIENCE (Agriculture)—Four-Year Course
BACHELOR OF SCIENCE (Agriculture and Education)
BACHELOR OF SCIENCE (Art Education)
BACHELOR OF SCIENCE (Chemistry)
BACHELOR OF SCIENCE (Chemical Engineering)
BACHELOR OF SCIENCE (Civil Engineering)
BACHELOR OF SCIENCE (Education)
BACHELOR OF SCIENCE (Electrical Engineering)
BACHELOR OF SCIENCE (Home Economics)
BACHELOR OF SCIENCE (Home Economics and Education)
BACHELOR OF SCIENCE (Hygiene)—Five-Year Nursing Courses
BACHELOR OF SCIENCE (Mechanical Engineering)
BACHELOR OF SCIENCE (Medical Science)
BACHELOR OF SCIENCE (Medical Technology)
BACHELOR OF SCIENCE (Metallurgical Engineering)
BACHELOR OF SCIENCE (Mining Engineering)
BACHELOR OF SCIENCE (Pharmacy)
BACHELOR OF SCIENCE (Physical Education)

A graduate of any course may receive the baccalaureate degree of any other course by completing the additional studies required in that course. Two baccalaureate degrees cannot be taken in one year, and for a second bachelor's degree in the College of Letters and Science there are required one year's additional study and a special thesis.

ADVANCED DEGREES IN THE GRADUATE AND PROFESSIONAL SCHOOLS

The University confers in course the following master's degrees: Master of Arts, special Master of Arts degrees in Commerce and Journalism, Master of Philosophy, Master of Music, Master of Science, and special Master of Science degrees in Social Work and in any of the branches of engineering, e.g., chemical, civil, etc. Candidates who have taken the Bachelor of Science degree in one of the engineering courses may also be granted the second degree of Civil Engineer, Mechanical Engineer, etc.

The University also confers in course the degrees of Doctor of Philosophy, Doctor of Medicine, and Doctor of Juridical Science.

ACADEMIC WORK

ADVISERS. Upon being admitted to the University, each student is assigned to a member of the faculty, who acts as his adviser. The duties of the adviser are to assist the student in selecting his subjects so as to secure a well-rounded education, as well as to aid him in interpreting the requirements and to oblige him to meet them in their proper sequence. The responsibility for the selection of courses rests, in the final analysis, upon the student and it is not the province of the adviser to refuse approval of a course which the student is entitled to elect. Similarly, it is the primary duty of the student to meet the requirements of his course in their proper order, so that he may not, in his senior year, find himself ineligible for graduation. At the opening of each semester the student is required to consult his adviser concerning his choice of studies, and the adviser must approve the student's elections before he is permitted to enter classes.

EXAMINATIONS. Each subject terminates in a two-hour written final examination at the close of the semester; these final examinations are regularly scheduled, and the times set may not be changed without special faculty authorization. During the semester two or three one-hour written tests are ordinarily held in all but the most advanced courses. There are no exemptions from examinations because of high standings in class work.

CREDITS. The unit used in computing the amount of work required for graduation is the credit, which represents one hour of class work per week for one semester or its equivalent in other forms of instruction together with the necessary preparation. Two or sometimes three hours of laboratory work are considered as the equivalent of one hour of class work.

GRADES AND POINTS. Semester grades are reported by letter only, although they are commonly based on averages of numerical grades in final examinations and other written work. The characterization of letter grades by plus and minus signs is not authorized. For the sake of convenience in computing weighted averages, each letter grade carries a specified number of points per credit; thus a B in a three-credit subject would yield 6 points. The scale of grades and points follows:

GRADE	PERCENTAGE EQUIVALENT	POINTS PER CREDIT
A (Excellent)	93-100	3
B (Good)	85- 92	2
C (Fair)	77- 84	1
D (Poor)	70- 76	0
E (Condition)	60- 69	0 (—½)*
F (Failure)	Below 60	(—1)*

POINT-CREDIT RATIO. The general quality of a student's work over a number of semesters is expressed in terms of a point-credit ratio, which is the result obtained by

dividing the total number of points he has earned by the total number of credits earned. The highest possible quotient is 3.0, which represents a grade of A in every subject; the lowest possible quotient is zero.

The point-credit ratio must not be confused with a similar figure known as the grade-point average; this is computed at the close of each semester and is based solely on the number of points earned and credits elected during that semester, with deductions for deficiencies (see * above). The maximum average is 3.0, the minimum —1.0.

ATTENDANCE. Students are required to be present at the opening of the semester and to remain until the work of the semester is finished. It is expected that every student will be present at all of the classes at which he is due. If at any time a student is absent, he must satisfy his instructors that such absence is for good and sufficient cause. Any student who is absent from recitations immediately preceding or following Thanksgiving day or the Christmas or spring recess without an excuse acceptable to the dean of his college will be excluded from the semester examinations in those subjects from which he was absent and will be required to write make-up examinations at the time condition examinations are given in the following semester.

AUDITORS. Regular students may enter classes as auditors, subject to the approval of the adviser and of the instructor whose class is visited. Auditors are under no obligations of regular attendance, preparation, recitation, or examination, and receive no credit toward graduation. Others may be admitted as auditors only with the consent of the dean; they are required to register, pay set fees, and to have class cards for the courses they elect to attend.

HIGH-SCHOOL FOREIGN LANGUAGE. High-school work in foreign language is accepted in satisfaction of the foreign-language requirements for the various degrees at the rate of four university credits for one unit, with a minimum of two units in one language (unless the language is continued in college) and a maximum of six units.

SUBJECT NOT TO BE DUPLICATED. No university credit will be granted for work in algebra, trigonometry, or foreign language taken at the University when such work represents a repetition of studies already completed in high school.

CREDIT FOR EXTENSION DIVISION WORK. Persons who are qualified for admission to the University may take Extension Division courses and apply the credit earned toward graduation after one year of study in residence.

The maximum credit granted for work taken through the Extension Division may not exceed one-half the number of credits required for graduation.

Extension Division work for university credit may not be done by any student while in attendance at any institution of learning, except by written approval from the authorized official of the institution concerned.

Students engaged upon correspondence-study courses prior to enrollment for residence work, which have not been completed by the date of campus enrollment, must take a suspension of correspondence-study instruction and must deposit with the Recorder of the Extension Division all advance assignments upon which recitation reports have not been made.

Information concerning Extension study may be obtained by addressing the Dean of the Extension Division, University of Wisconsin.

PHYSICAL ACTIVITY REQUIREMENT. Some specific physical activity is required of all students throughout the freshman year. For women this requirement is confined to physical education, but men may elect physical education, military science, or band instruction, as described in the following sections. The requirement in physical education for men may be satisfied in part through participation in freshman or varsity team sports, intramural sports, or wholly in the sports program in the regular physical education classes. All men students enolled in physical education are required to be able to swim a distance of fifty yards by the end of their freshman year. Men students who choose military science as their option must complete two full years of work in order to satis-

fy the requirement; however, one credit will be granted toward graduation for each of the four semesters.

PHYSICAL EDUCATION

The facilities of the departments, which are open to all students of the University, furnish opportunity for participation in all forms of recreational activities.

Credit for the satisfactory completion of the required or optional work in physical education is determined on the basis of participation, motor proficiency, and knowledge of the principles and practice of efficient living. Election of specialized sports and exercises may be made by students when they register.

Students who enter with sophomore standing, and those who are physically unfit, as certified by the Department of Student Health, may be exempt from physical education upon application to the director of the appropriate gymnasium. Adult special students over 23 years of age who are not candidates for a degree, and students who present credentials of accredited courses in physical education taken in another college, may also be given exemption. Self-supporting students and others upon whom the requirement in physical education might work a temporary hardship may be permitted to defer the prescribed training upon making proper application. In no case will permission be granted to defer work for more than one semester at a time, and no work will be deferred into the senior year. All applications for exemption or deferment must be made in advance.

A specified costume is required for women; this can be purchased in Madison at a cost of about $3.00. Men students will provide themselves with suitable clothing for indoor and outdoor activities. Indoor suit: regulation white sleeveless shirt with "Wisconsin" across the front, white running pants with cardinal trim, supporter, wool socks, and rubber-soled shoes. For outdoor wear the regulation indoor equipment is amplified by a plain gray suit of canton flannel consisting of shirt and long trousers. The approximate cost of a complete suit for indoor and outdoor activities is $4.00 to $6.00.

MEDICAL AND PHYSICAL EXAMINATIONS

The organic condition, stage of physical development, and degree of motor efficiency attained by each entering freshman and sophomore are determined at the opening of the college year by a series of examinations and tests made by the Departments of Student Health and Physical Education, as described on page 18. All members of intercollegiate teams are subject to the supervision of the medical members of the staff and every precaution is taken to prevent overtraining, exhaustion, or unnecessary strain.

MEN'S ATHLETICS

Intramural tournaments and contests for men are conducted in all games and sports, and their conduct and management are under the supervision and control of the Department of Physical Education and Intramural Athletics. An Advisory Board, consisting of three representatives from fraternities, two from dormitories, and two from the independent groups, advise with the department in all matters pertaining to intramural administration. A "sports-for-all" program is promoted, with social and religious organizations, fraternities, dormitory units, and other groups of men students participating in a wide range of games and other athletic activities.

The University is a member of the Western Intercollegiate Conference Athletic Association and maintains representative teams in all intercollegiate sports. Freshmen are not allowed to compete on intercollegiate teams. Intercollegiate sports are under the government of the Athletic Board, a committee of seven members consisting of four faculty members, two representatives of the Alumni Association, and the president of the Student Athletic Board. The members of the faculty and the alumni members are appointed by the President in conjunction with the University Committee subject to the approval of the Board of Regents.

WOMEN'S CLUBS IN PHYSICAL EDUCATION ACTIVITIES

Tournaments, play days and sports days suitable to women are conducted and managed by the Women's Athletic Association, which works closely with the Department of Physical Education and which is a large factor in stimulating and maintaining general interest and participation in physical education activities among the women students. Through its different sports clubs, W.A.A. cooperates with the department in promoting such participation in sports and other outdoor activities among women students. These clubs include: Hockey, Volley Ball, Basketball, Bowling, Dolphin (the swimming club), Orchesis (the dance club), Tennis, Baseball, Archery, and Bit and Spur (the riding club). There is a W.A.A. Outing Club which promotes hiking, winter sports, and canoeing. Orchesis provides an opportunity for advanced work in the dance for those students who have the interest and ability to progress faster than is possible in the regular scheduled classes; membership in it is open to those who have achieved sufficient mastery of the dance from both the technical and the artistic points of view to be able to contribute to the activity of the group as well as to profit from it. Physical Education Club is a professional organization including in its membership the majors in the department; its purpose is to provide a medium of discussion for its members along lines which touch upon their work.

BAND INSTRUCTION

The University Bands consist of two hundred men divided into a Concert Band, a First Regimental Band, and a Second Regimental Band. The Regimental Bands serve as a training school for the Concert Band and serve the Military Department at official functions. Each organization rehearses three times weekly. Upperclassmen who are members of the Concert Band and selected members of the Regimental Bands who remain for duty at Commencement receive a stipend of thirty dollars.

Freshmen in either of these bands are credited with fulfilling the physical activity requirement. Beginning with the sophomore year, qualified students may take band for one academic credit per semester. Membership is determined solely on the basis of individual tryouts. Bandsmen are required to supply their own uniforms and, in general, their own instruments, although some of those less commonly used are rented to students.

MILITARY SCIENCE

The primary object of instruction in the Department of Military Science and Tactics is to train students in the performance of the duties of commissioned officers so that, in the event of a national emergency, they may be qualified to intelligently lead the units of the large armies upon which the safety of the country will depend. This instruction prepares students for leadership in civil life as well as in the military service. The tactful handling of men, the ability to cooperate with others, the organization of effort and resources are common factors of success in either military or civil life.

The department offers two successive, two-year courses in military science—*Basic* and *Advanced*. Enrollment in the basic course is open to all male students between the ages of 14 and 26 who are citizens of the United States and who meet the physical requirements. Enrollment in the Advanced Course is limited to specially selected students who have completed the basic course. Completion of either course, shall, when entered upon by a student, be a prerequisite for graduation unless in exceptional cases, the student is discharged from the ROTC on the recommendation of the Professor of Military Science and Tactics. Completion of the basic course satisfies the physical activity requirement of the University. This physical activity requirement specifies that all students throughout their freshman year engage in some specific physical activity at the rate of three class hours a week. Men may elect military science, physical education or band to fulfill this requirement.

Instruction within the department is conducted by Regular Army Officers in three units of the Reserve Officers Training Corps—Infantry, Engineering and Signal Corps. Enrollment in the Engineer unit is limited to students pursuing academic courses in engineering and enrollment in the Signal Corps unit, except in special cases, is limited to students taking academic courses in electrical engineering.

One academic credit is given for each semester's work in the basic course and two academic credits for each semester's work in the advanced course. Instruction in the basic course is carried on for 3 hours each week and in the advanced course for five hours each week. Students enrolled in the advanced course are also required to attend one summer camp of six weeks duration. Upon satisfactory completion of the advanced course, including the prescribed summer camp training, graduates thereof, who are 21 years of age are offered commissions as Second Lieutenants in the appropriate branch of the Organized Reserve Corps of the Army of the United States. Such graduates who are not 21 years of age are given certificates of eligibility for commission. Upon reaching the age of 21 those students are offered commissions in the Organized Reserve Corps without further examination.

Students entering the University who have previously completed courses in other Junior or Senior units of the Reserve Officers Training Corps, in a school or college conducting military training under an officer of the Army detailed as Professor of Military Science and Tactics or at the United States Military Academy may apply for advanced standing in the Department of Military Science at this University. Such applications should be made to the Professor of Military Science and Tactics at the time of registration. Advanced standing cannot be given to students who have received military training other than that mentioned above. Students from other institutions admitted to the Advanced Course are given only one credit per semester during their freshman year. In the sophomore year the regular 2 credits per semester are awarded.

Fees and Uniforms. Students enrolled in the advanced course are paid a "commutation of subsistence" at the rate of about $7.50 a month for twenty-one months. They are also paid at the rate of $21.00 a month while attending summer camp. Transportation to and from camp as well as subsistence and quarters are furnished by the Government.

Uniforms and equipment are furnished by the Government. Students taking the basic course are required to pay a fee of $2.00 each semester; and those taking the advanced course pay one fee of $7.50 at the beginning of the course.

Extra-Curricular Activities. The department maintains representative rifle and pistol teams. Both squads receive training in shooting for about five months during the year, and fire correspondence matches with all the leading schools and colleges in the United States, as well as several shoulder-to-shoulder and special matches. Drill teams are maintained by the department, composed of selected students. These compete with teams of other institutions and also appear in exhibition drills on occasions.

Scabbard and Blade is a national honorary fraternity of 80 chapters to which advanced course students are eligible for membership. Company A, First Regiment, the parent company, was founded at this University in 1904. Pershing Rifles is a national honorary fraternity of 27 chapters in which basic course students are eligible for membership. Company G, Second Regiment was organized at this University in 1936. A student chapter of the American Society of Military Engineers, a national professional society, was organized here in 1938. Engineer advanced course students are eligible for membership.

COLLEGE OF LETTERS AND SCIENCE

G. C. Sellery, Dean

FACULTY

Adams, Nicholson Barney, *Ph.D.*, Professor of Spanish
Adkins, Homer Burton, *Ph.D.*, Professor of Chemistry
Agard, Walter Raymond, *B.Litt.*, Professor of Greek
Alberson, Mrs. Hazel Stewart, *Ph.D.*, Instructor in Comparative Literature
Allen, Charles Elmer, *Ph.D.*, Professor of Botany
Allen, Florence Eliza, *Ph.D.*, Instructor in Mathematics
Allen, Katharine, *Ph.D.*, Emeritus Assistant Professor of Latin
Allez, George Clare, *M.S.*, Associate Director of the Library School
Andersen, Martin Perry, *M.A.*, Instructor in Speech and Rural Sociology
Aurner, Robert Ray, *Ph.D.*, Professor of Business Administration
Backus, Myron Port, *Ph.D.*, Assistant Professor of Botany
Bandy, William Thomas, *Ph.D.*, Assistant Professor of French
Barthel, Alfred Charles, Acting Assistant Professor of Music
Beard, William, *Ph.D.*, Assistant Professor of Political Science
Beatty, Arthur, *Ph.D.*, Emeritus Professor of English
Becker, Howard, *Ph.D.*, Professor of Sociology
Bennett, Wendell Clark, *Ph.D.*, Associate Professor of Anthropology
Berkowitz, Hyman Chonon, *Ph.D.*, Professor of Spanish
Bilstad, Nellie Mae, *Ph.D.*, Instructor in Zoology
Birt, Charles J., *LL.B.*, Lecturer in Sociology
Bögholt, Carl Möller, *Ph.D.*, Associate Professor of Philosophy
Borchers, Gladys Louise, *Ph.D.*, Associate Professor of Speech
Bottke, Karl George, *M.A.*, Instructor in French
Bradford, Curtis Baker, *Ph.D.*, Instructor in English
Brandeis, Elizabeth (Mrs. P. A. Raushenbush), *Ph.D.*, Lecturer in Economics
Breit, Gregory, *Ph.D.*, Professor of Physics
Bricken, Carl Ernest, *B.A.*, Director of the School of Music; Professor of Music
Bridgman, Alma Louise, *M.A.*, Instructor in Economics
Bridgman, Wilbur Benjamin, *Ph.D.*, Instructor in Chemistry
Brogden, Wilfred John, *Ph.D.*, Acting Assistant Professor of Psychology
Brown, Stuart Gerry, *Ph.D.*, Instructor in English
Brubaker, Ethel Catherine, Lecturer in Sociology
Bruns, Friedrich, *Ph.D.*, Professor of German
Bryan, George Smith, *Ph.D.*, Professor of Botany
Buck, Philo Melvin, Jr., *M.A.*, *Litt.D.*, Professor of Comparative Literature
Buerki, Fredrick Alga, *M.S.*, Instructor in Speech and Social Education; Assistant Theater Director
Burke, Laurance Charles, *B.L.*, Associate Librarian
Burkhardt, Frederick Henry, *Ph.D.*, Instructor in Philosophy
Burleigh, Cecil Edward, *D.M.*, Professor of Music
Cameron, Norman Alexander, *Ph.D.*, *M.D.*, Acting Professor of Psychology
Carpenter, Mrs. Louise Lockwood, *B.M.*, Associate Professor of Music
Cassidy, Frederic Gomes, *Ph.D.*, Instructor and Research Associate in English
Chew, Samuel Peaco, *Ph.D.*, Instructor in English
Cheydleur, Frederick Daniel, *Ph.D.*, Professor of French; Director of Placement and Attainment Examinations

CLARK, HARRY HAYDEN, *M.A.*, Professor of English
CLARKE, HELEN ISABEL, *M.A.*, Assistant Professor of Sociology
CLAUS, PEARL ELIZABETH, *Ph.D.*, Jonathan Bowman Fellow and Research Associate in Zoology
COMMONS, JOHN ROGERS, *LL.D.*, Emeritus Professor of Economics
COOL, CHARLES DEAN, *Ph.D.*, Professor of Spanish
COON, LELAND AVERY, *M.A.*, Professor of Music
CURTIS, JOHN THOMAS, *Ph.D.*, Instructor in Botany
DANIELS, FARRINGTON, *Ph.D.*, Professor of Chemistry
DENNISTON, ROLLIN HENRY, *Ph.D.*, Assistant Professor of Botany
DEVEREAUX, MARY CAROLINE, *M.A.*, Assistant Professor of Library Science
DILLON, MYLES, *Ph.D.*, Professor of Gaelic and Irish History and Literature
DOANE, GILBERT HARRY, *B.A.*, Director of University Libraries; Director of the Library School
DORAN, MADELEINE, *Ph.D.*, Assistant Professor of English
DUDLEY, WILLIAM HENRY, *B.A.*, Emeritus Assistant Librarian
DUGGAR, BENJAMIN MINGE, *Ph.D.*, Professor of Physiological and Applied Botany
DURAND, LOYAL, JR., *Ph.D.*, Assistant Professor of Geography
DVORAK, RAYMOND FRANCIS, *B.M.*, Assistant Professor of Music
EARLEY, JAMES STAINFORTH, *Ph.D.*, Assistant Professor of Economics
EASTMAN, IRENE BELLE, *B.M.*, Assistant Professor of Music
EASUM, CHESTER VERNE, *Ph.D.*, Associate Professor of History
EBENSTEIN, WILLIAM, *Ph.D.*, *S.J.D.*, Assistant Professor of Political Science
ECCLES, MARK, *Ph.D.*, Associate Professor of English
EDSON, CHARLES FARWELL, JR., *Ph.D.*, Assistant Professor of History
ELDER, JAMES HARLAN, *Ph.D.*, Lecturer in Psychology
ELWELL, FAYETTE HERBERT, *B.A.*, *C.P.A.*, Director of the School of Commerce; Professor of Accounting
ELY, STEPHEN LEE, *Ph.D.*, Assistant Professor of Philosophy
EMMONS, RICHARD CONRAD, *Ph.D.*, Professor of Geology
ERDMAN, DAVID VORSE, *Ph.D.*, Instructor in English
EVANS, HERBERT PULSE, *Ph.D.*, Associate Professor of Mathematics
EVANS, RICHARD IRVING, *Ph.D.*, Assistant Professor of Botany
EVERETT, CORNELIUS JOSEPH, *Ph.D.*, Instructor in Mathematics
EWBANK, HENRY LEE, *Ph.D.*, Professor of Speech
EZBAN, SELIM MAURICE, *Ph.D.*, Instructor in French
FARNSWORTH, PAUL RANDOLPH, *Ph.D.*, Acting Professor of Social Psychology
FASSETT, NORMAN CARTER, *Ph.D.*, Associate Professor of Botany and Curator of the Herbarium
FELLOWS, DONALD ROSS, *M.A.*, Associate Professor of Business Administration
FINCH, VERNOR CLIFFORD, *Ph.D.*, Professor of Geography
FISCHER, RICHARD, *Ph.D.*, Professor of Chemistry
FISK, EMMA LUELLA, *Ph.D.*, Associate Professor of Botany
FOX, PHILIP GORDER, *M.A.*, Associate Professor of Business Administration
FRIEDMAN, MILTON, *Ph.D.*, Visiting Professor of Economics
FRIES, HORACE SNYDER, *Ph.D.*, Lecturer in Philosophy
FULCHER, PAUL MILTON, *Ph.D.*, Associate Professor of English
GARNETT, ARTHUR CAMPBELL, *M.A.*, *Litt.D.*, Associate Professor of Philosophy
GAUMNITZ, ERWIN ALFRED, *Ph.D.*, Assistant Professor of Insurance
GAUS, JOHN MERRIMAN, *Ph.D.*, Professor of Political Science
GAY, LUCY MARIA, *B.L.*, Emeritus Associate Professor of French
GERTH, HANS H., *Ph.D.*, Acting Assistant Professor of Sociology and Anthropology
GIBSON, ELLEN BERNICE, *B.A.*, Instructor in Library Science
GIBSON, JOHN CURRIE, *B.A.*, *C.P.A.*, Associate Professor of Accounting
GIESE, WILLIAM FREDERICK, *M.A.*, *Litt.D.*, Emeritus Professor of French

GILBERT, EDWARD MARTINIUS, *Ph.D.*, Professor of Botany and Plant Pathology
GILLEN, CHARLES FREDERICK, *Ph.D., Litt.D.*, Associate Professor of French
GILLIN, JOHN LEWIS, *Ph.D., LL.D.*, Professor of Sociology
GLAESER, MARTIN GUSTAV, *Ph.D.*, Professor of Economics and Commerce
GLICKSMAN, HARRY, *LL.B., Ph.D.*, Lecturer in English; Junior Dean of the College of Letters and Science
GOLDNER, KARL JOHN, *Ph.D.*, Instructor in Pharmacy
GORDON, EDGAR BERNARD, Professor of Music
GRAY, PHILIP HAYWARD, JR., *Ph.D.*, Assistant Professor of English
GREENE, HENRY CAMPBELL, *Ph.D.*, Instructor in Botany
GREENLEAF, CHARLES HUNT, *M.A.*, Instructor in French
GRIM, HARRIETT ELIZABETH, *Ph.D.*, Instructor in Speech
GROVES, HAROLD MARTIN, *Ph.D.*, Professor of Economics
GUYER, MICHAEL FREDERIC, *Ph.D., LL.D.*, Professor of Zoology
HAGEN, OSKAR FRANK LEANORD, *Ph.D., F.R.S.A.*, Professor of History and Criticism of Art; Curator of the University Art Works
HALL, NORRIS FOLGER, *Ph.D.*, Professor of Chemistry
HANLEY, MILES LAWRENCE, *M.A.*, Professor of English
HARLOW, HARRY FREDERICK, *Ph.D.*, Associate Professor of Psychology
HARRINGTON, FRED HARVEY, *Ph.D.*, Assistant Professor of History
HARRIS, JULIAN EARLE, *Ph.D.*, Assistant Professor of French
HARTSHORNE, RICHARD, *Ph.D.*, Associate Professor of Geography
HASLER, ARTHUR DAVIS, *Ph.D.*, Instructor in Zoology
HAUGEN, EINAR INGVALD, *Ph.D.*, Thompson Professor of Scandanavian Languages
HEATH, ROY E., *Ph.D.*, Instructor in Chemistry
HEFFNER, ROE-MERRILL SECRIST, *Ph.D.*, Professor of German
HEIRONIMUS, JOHN PAUL, *Ph.D.*, Assistant Professor of Classics
HENMON, VIVIAN ALLEN CHARLES, *Ph.D.*, Professor of Psychology; Director of Educational Guidance
HENSEY, IRENE ANITA, *M.S.*, Assistant Professor of Accounting
HERB, RAYMOND GEORGE, *Ph.D.*, Associate Professor of Physics
HERRICK, CHESTER ALBERN, *Sc.D.*, Associate Professor of Zoology and Veterinary Science
HERRIOTT, JAMES HOMER, *Ph.D.*, Associate Professor of Spanish
HESSELTINE, WILLIAM BEST, *Ph.D.*, Professor of History
HICKS, JOHN DONALD, *Ph.D.*, Professor of History
HIGBY, CHESTER PENN, *Ph.D., LL.D.*, Professor of History
HIRSCHFELDER, JOSEPH OAKLAND, *Ph.D.*, Research Associate in Chemistry
HOHLFELD, ALEXANDER RUDOLPH, *Ph.D.*, Emeritus Professor of German
HOLT, MATTHEW LESLIE, *Ph.D.*, Assistant Professor of Chemistry
HOWELLS, WILLIAM WHITE, *Ph.D.*, Acting Assistant Professor of Sociology
HUFFER, CHARLES MORSE, *Ph.D.*, Assistant Professor of Astronomy; Assistant Astronomer Washburn Observatory
HUGHES, MERRITT YERKES, *Ph.D.*, Professor of English
HUSBAND, RICHARD WELLINGTON, *Ph.D.*, Assistant Professor of Psychology
HYDE, GRANT MILNOR, *M.A.*, Director of the School of Journalism; Professor of Journalism
HYERS, DONALD HOLMES, *Ph.D.*, Instructor in Mathematics
ILTIS, LEON LEONARD, *B.M.*, Associate Professor of Music
INGERSOLL, LEONARD ROSE, *Ph.D.*, Professor of Physics
INGRAHAM, MARK HOYT, *Ph.D.*, Professor of Mathematics
JACKSON, STANLEY BARTLETT, *Ph.D.*, Instructor in Mathematics
JASTROW, JOSEPH, *Ph.D., LL.D.*, Emeritus Professor of Psychology
JOHANSEN, GUNNAR, Associate Professor of Music

JOHNSON, GERTRUDE ELIZABETH, *B.A.*, Associate Professor of Speech
JOHNSON, WILLIAM SUMMER, *Ph.D.*, Instructor in Chemistry
JONES, CHESTER LLOYD, *Ph.D.*, Professor of Commerce and Political Science
JONES, PAUL GEORGE, *M.A.*, Instructor in Music
JUDAY, CHANCEY, *M.A., LL.D.*, Professor of Limnology
KAHLENBERG, LOUIS, *Ph.D.*, Professor of Chemistry
KANNE, WILLIAM RUDOLPH, *Ph.D.*, Instructor in Physics
KASTEN, LLOYD AUGUST WILLIAM, *Ph.D.*, Assistant Professor of Spanish
KELLER, RAYMOND NEVOY, *Ph.D.*, Instructor in Chemistry
KELLOGG, MRS. MARIE JOHNSON, *M.A.*, Instructor in Speech and Rural Sociology
KERSHNER, RICHARD BRANDON, *Ph.D.*, Instructor in Mathematics
KIEKHOFER, WILLIAM HENRY, *Ph.D., LL.D.*, Professor of Economics
KIENITZ, JOHN FABIAN, *Ph.D.*, Instructor in Art History
KITTEL, PAULINE MARGARETHA, *Ph.D.*, Assistant Professor of German
KLEENE, STEPHEN COLE, *Ph.D.*, Assistant Professor of Mathematics
KLEIN, MICHAEL WILLIAM, *Ph.D.*, Assistant Professor of Chemistry
KNAPLUND, PAUL ALEXANDER, *Ph.D.*, Professor of History
KNIPP, GEORGE WALTER, *Ph.D.*, Instructor in English
KRAUSKOPF, FRANCES CRAIG, *Ph.D.*, Professor of Chemistry
KREMERS, EDWARD, *Pharm.M., Ph.D., Sc.D.*, Emeritus Professor of Pharmaceutical Chemistry
KUBLY, HAROLD EDWARD, *Ph.D.*, Instructor in Business Administration
LAIRD, ARTHUR GORDON, *Ph.D.*, Emeritus Professor of Greek
LANE, J(AMES) RUSSELL, *B.S.*, Assistant Professor of Speech and Social Education; Director of the University Theater
LANGER, RUDOLPH ERNEST, *Ph.D.*, Professor of Mathematics
LEITH, CHARLES KENNETH, *Ph.D., LL.D., Sc.D.*, Professor of Geology
LEONARD, WILLIAM ELLERY, *Ph.D.*, Professor of English
LESCOHIER, DON DIVANCE, *Ph.D.*, Professor of Economics
LÉVÊQUE, ANDRE CAMILLE, *Ph.D.*, Assistant Professor of French
LINS, ANGELINE GENEVIEVE, *B.A.*, Instructor in Accounting
LUCKHARDT, HILMAR FRANCIS, *M.A.*, Instructor in Music
LUNDGREN, HAROLD PALMER, *Ph.D.*, Research Associate in Chemistry
LUZENSKA, KUNDA, *Ph.D.*, Acting Instructor in French
LYON, ALBERT EDDY, *Ph.D.*, Assistant Professor of Spanish
MCCORMICK, THOMAS CARSON, *Ph.D.*, Professor of Sociology
MACDUFFEE, CYRUS COLTON, *Ph.D.*, Professor of Mathematics
MCELVAIN, SAMUEL MARION, *Ph.D.*, Professor of Chemistry
MCGILVARY, EVANDER BRADLEY, *Ph.D.*, Emeritus Professor of Philosophy
MCKINSTRY, HUGH EXTON, *Ph.D.*, Acting Professor of Geology
MCSHAN, WILLIAM HARTFORD, *Ph.D.*, Research Associate in Zoology
MACK, JULIAN ELLIS, *Ph.D.*, Assistant Professor of Physics
MANNING, WINSTON MARVEL, *Ph.D.*, Research Associate in Limnology
MARCH, HERMAN WILLIAM, *Ph.D.*, Professor of Mathematics
MARSHALL, WILLIAM STANLEY, *Ph.D.*, Emeritus Professor of Entomology
MATHEWS, JOSEPH HOWARD, *Ph.D.*, Director of the Course in Chemistry; Professor of Chemistry
MEIKLEJOHN, ALEXANDER, *Ph.D., LL.D.*, Emeritus Professor of Philosophy
MEKEEL, HAVILAND SCUDDER, *Ph.D.*, Acting Associate Professor of Sociology
MELOCHE, VILLIERS WILLSON, *Ph.D.*, Professor of Chemistry
MERCIER, GERMAINE EUGENIE, *M.A.*, Instructor in French
MEYER, ROLAND KENNETH, *Ph.D.*, Professor of Zoology
MICHELL, ROBERT BELL, *Ph.D.*, Associate Professor of French
MILLER, ERIC REXFORD, *M.S.*, Lecturer in Meteorology

MILLIGAN, EDWARD ELGIN, *Ph.D.*, Assistant Professor of French ad Italian
MITCHELL, RONALD ELWY, *M.A.*, Assistant Professor of Speech; Theater Director
MOORE, WILLIAM MCKINLEY, *M.A.*, Lecturer in Journalism
MORTON, WALTER ALBERT, *Ph.D.*, Professor of Economics
NEAL, ROBERT MILLER, *M.A.*, Assistant Professor of Journalism
NEALE-SILVA, EDUARDO ALVARO, *Ph.D.*, Assistant Professor of Spnish
NETTELS, CURTIS PUTNAM, *Ph.D.*, Professor of History
NEWELL, NORMAN DENNIS, *Ph.D.*, Assistant Professor of Geolog
NOLAND, LOWELL EVAN, *Ph.D.*, Professor of Zoology
OELSCHLAGER, VICTOR RUDOLPH BERNHARDT, *Ph.D.*, Instructor in panish
OGG, FREDERIC AUSTIN, *Ph.D., LL.D.*, Professor of Political Sciene
OLSON, JULIUS EMIL, *B.L.*, Emeritus Professor of Scandinavian anguages
ORTEGA, JOAQUIN, *M.A.*, Professor of Spanish
OTTO, MAX CARL, *Ph.D.*, Professor of Philosophy
PALMERI, JOSEPH, *Ph.D.*, Instructor in French
PARKS, LLOYD MCCLAIN, *Ph.D.*, Instructor in Pharmacy
PATTERSON, HELEN MARGUERITE, *M.A.*, Assistant Professor of Journalism
PERLMAN, SELIG, *Ph.D.*, Professor of Economics
PETERSON, ALFRED WALTER, *B.A.*, Comptroller; Lecturer in Accounting
PFANKUCHEN, LLEWELLYN ERNEST, *Ph.D.*, Associate Professor of Political Science
POCHMANN, HENRY AUGUST, *Ph.D.*, Professor of English
POST, GAINES, *Ph.D.*, Associate Professor of History
QUINTANA, RICHARDO BECKWITH, *Ph.D.*, Professor of English
RAMSPERGER, ALBERT GUSTAV, *Ph.D.*, Assistant Professor of Phiosophy
REHDER, HELMUT, *Ph.D.*, Associate Professor of German
REYNOLDS, ROBERT LEONARD, *Ph.D.*, Professor of History
RICHTMANN, WILLIAM OSCAR, *Ph.D.*, Professor of Pharmacognosy
RIEGEL, SIEGHARDT MICHAEL, *Ph.D.*, Instructor in German
ROE, FREDERICK WILLIAM, *Ph.D., Litt.D.*, Professor of English
ROEBUCK, JOHN RANSOM, *Ph.D.*, Professor of Physics
ROGERS, SAMUEL GREENE ARNOLD, *M.A.*, Professor of French
ROLLEFSON, RAGNAR, *Ph.D.*, Assistant Professor of Physics
RÖLVAAG, ELLA VALBORG, *B.A.*, Acting Instructor in Scandnavian Languages
RÖSELER, ROBERT OSWALD, *Ph.D.*, Milwaukee Seminary Professof of German
ROSEVEARE, WILLIAM EARL, *Ph.D.*, Assistant Professor of Chemistry
ROSS, EDWARD ALSWORTH, *Ph.D., LL.D.*, Emeritus Professor of Sociology
ROSSI, JOSEPH, *Ph.D.*, Assistant Professor of Italian
RUNGE, ALMA MATILDA, *B.A.*, Assistant Professor of Library Science
RUSSO, JOSEPH LOUIS, *Ph.D.*, Associate Professor of Italian
RUTLEDGE, LESLIE ABRAM, *Ph.D.*, Instructor in English
SACHSE, WILLIAM LEWIS, *Ph.D.*, Instructor in History
SALINGER, HERMAN, *Ph.D.*, Instructor in German
SALTER, JOHN THOMAS, *Ph.D.*, Associate Professor of Political Science
SCHLATTER, EDWARD BUNKER, *Ph.D.*, Professor of Romance Languages, Extension Division and College of Letters and Science
SCHLICHER, JOHN JACOB, *Ph.D.*, Emeritus Assistant Professor of Latin
SCHUCK, HARRY MICHAEL, *M.A.*, Instructor in Commerce
SCHUETTE, HENRY AUGUST, *Ph.D.*, Professor of Chemistry
SCOTT, WILLIAM AMASA, *Ph.D., LL.D.*, Emeritus Professor of Economics
SELLERY, GEORGE CLARKE, *Ph.D., LL.D.*, Dean of the College of Letters and Science; Professor of History
SHARP, FRANK CHAPMAN, *Ph.D.*, Emeritus Professor of Philosophy
SIEBECKER, MRS. SOPHIA, *B.A.*, Lecturer in Sociology
SMITH, HUGH ALLISON, *M.A.*, Professor of French

SOKOLNIKOFF, IVAN SEPHAN, *Ph.D.*, Associate Professor of Mathematics
SORUM, CLARENCE HAVEY, *Ph.D.*, Associate Professor of Chemistry
SPIELMAN, MARVIN ANDREW, *Ph.D.*, Assistant Professor of Chemistry
SPOHN, WILLIAM HENRY, *B.A., LL.B.*, Lecturer in Commerce
STAUFFER, JOHN FREDRICK, *Ph.D.*, Assistant Professor of Botany
STEBBINS, JOEL, *Ph.D., Sc.D.*, Director of the Washburn Observatory; Professor of Astronomy
STERLING, HENRY SOMERS, *Ph.D.*, Instructor in Geography
STERLING, SUSAN ADELAIDE, *M.L.*, Emeritus Assistant Professor of German
STEVE, WILLIAM FREDERICK, *M.A.*, Associate Professor of Physics
STRATMAN-THOMAS, (MARGARET) HELENE, *M.A.*, Instructor in Music
SULLIVAN, JOHN MICHAEL, *M.A.*, Instructor in French
SWINNEY, EDWARD EARLE, *M.B.*, Associate Professor of Music
SZPINALSKI, GEORGE, Instructor in Music
TAYLOR, HAROLD ALEXANDER, *Ph.D.*, Instructor in Philosophy
TAYLOR, WARNER, *M.A.*, Professor of English
TAYLOR, WILLIAM BAYARD, *Ph.D.*, Professor of Finance
THAYER, FRANK, *M.A., J.D.*, Associate Professor of Journalism
THOMAS, CHARLES WRIGHT, *Ph.D.*, Assistant Professor of English, College of Letters and Science and Extension Division
THORNBURY, ETHEL MARGARET, *Ph.D.*, Associate Professor of English
THWAITES, FREDRIK TURVILLE, *M.A.*, Assistant Professor of Geology
TREWARTHA, GLENN THOMAS, *Ph.D.*, Professor of Geography
TROWBRIDGE, FREDERICK HOYT, *Ph.D.*, Assistant Professor of English
TRUMBOWER, HENRY ROSCOE, *Ph.D.*, Professor of Commerce and Economics
TRUMP, PAUL LEROY, *Ph.D.*, Assistant Professor in the Teaching of Mathematics
TUCKER, JOSEPH EAGON, *Ph.D.*, Instructor in French
TWADDELL, WILLIAM FREEMAN, *Ph.D.*, Professor of German
TWENHOFEL, WILLIAM HENRY, *Ph.D.*, Professor of Geology
TYLER, STANLEY ALLEN, *Ph.D.*, Assistant Professor of Geology
UHL, ARTHUR HOYT, *Ph.D.* Director of the School of Pharmacy; Associate Professor of Pharmaceutical Chemistry
VAN VLECK, EDWARD BURR, *Ph.D., LL.D., D.M., Sc.D.*, Emeritus Professor of Mathematics
VASILIEV, ALEXANDER ALEXANDER, *Ph.D.*, Emeritus Professor of History
VIRTANEN, REINO, *Ph.D.*, Instructor in French
VIVAS, ELISEO, *Ph.D.*, Assistant Professor of Philosophy
VON GRUENINGEN, JOHN PAUL, *Ph.D.*, Assistant Professor of German
WAGNER, GEORGE, *Ph.C., M.A.*, Professor of Zoology
WAHLIN, HUGO BERNARD, *Ph.D.*, Professor of Physics
WAKEMAN, NELLIE ANTOINETTE, *Ph.D.*, Assistant Professor of Pharmacy
WALES, JULIA GRACE, *Ph.D.*, Assistant Professor of English
WALLACE, SHERMAN LEROY, *Ph.D.*, Assistant Professor of Classics
WALLERSTEIN, RUTH COONS, *Ph.D.*, Associate Professor of English
WALTON, JAMES HENRY, *Ph.D.*, Professor of Chemistry
WATROUS, JAMES SCALES, *Ph.D.*, Instructor in Art History
WEAVER, ANDREW THOMAS, *Ph.D.*, Professor of Speech
WEST, ROBERT WILLIAM, *Ph.D.*, Professor of Speech Pathology
WHITE, HELEN CONSTANCE, *Ph.D.*, Professor of English
WHITFORD, ALBERT EDWARD, *Ph.D.*, Assistant Professor of Astronomy
WILCOX, LEE ROY, *Ph.D.*, Instructor in Mathematics
WILDS, ALFRED L., *Ph.D.*, Instructor in Chemistry
WILLARD, JOHN ELA, *Ph.D.*, Instructor in Chemistry

WILLARD, OLIVER MECARTNEY, *Ph.D.*, Instructor in English
WILLIAMS, JOHN WARREN, *Ph.D.*, Professor of Chemistry
WINANS, JOHN GIBSON, *Ph.D.*, Assistant Professor of Physics
WINCHELL, ALEXANDER NEWTON, *M.S.*, *Sc.D.*, Professor of Geology
WINSPEAR, ALBAN DEWES, *M.A.*, Associate Professor of Classics
WITTE, EDWIN EMIL, *Ph.D.*, Professor of Economics
WOLFE, HAROLD RECLUS, *Ph.D.*, Instructor in Zoology
WOOD, CHARLOTTE ROBERTSON, *M.A.*, Instructor in English
WORKMAN, JOHN DAVID, *Ph.D.*, Instructor in German
ZAWACKI, EDMUND IGNACE, *M.A.*, Lecturer in Polish
ZDANOWICZ CASIMIR DOUGLASS, *Ph.D.*, Professor of French

I. COURSES OF STUDY OFFERED

The work of a student during his first two years in the College of Letters and Science is included under either the B.A. or the Ph.B. General Course or one of several special courses mentioned below and discussed in detail on the pages indicated. After completing two years in one of the General Courses the student may regularly (1) work toward either the B.A., or the Ph.B. degree in the General Course, (2) enter one of the special courses (Commerce, Journalism), (3) transfer to the School of Education as a candidate for the degree of B.S., (Education) and for the University Teachers' Certificate, or (4) work toward the B.A. or Ph.B. degree with a view to entering the Law School at the beginning of the senior year or later.

LEADING TO THE DEGREE OF BACHELOR OF ARTS
- General Course, page 60
- Course in Commerce, page 73 (School of Commerce)
- Course in Humanities, page 67
- Course in Journalism, page 78 (School of Journalism)
- Premedical Course, page 71

LEADING TO THE DEGREE OF BACHELOR OF SCIENCE
- Course in Chemistry, page 65
- Course in Hygiene (see School of Nursing Bulletin)
- Course in Pharmacy, page 69
- Premedical Course, page 72
- Course in Medical Technology (see Medical School Bulletin)

LEADING TO THE DEGREE OF BACHELOR OF MUSIC
- Course in Music, page 89 (School of Music)

LEADING TO THE DEGREE OF BACHELOR OF PHILOSOPHY
- General Course, page 63
- Course in Commerce, page 73 (School of Commerce)

LEADING TO THE DEGREE OF BACHELOR OF LIBRARY SCIENCE
- Course in Library Science, page 85 (Library School)

II. GENERAL REGULATIONS

1. ADVISERS

Upon being admitted to the University, each student is assigned to a member of the faculty who acts as his adviser during the freshman and sophomore years. The duties of the adviser are to assist the student in selecting his subjects so as to secure a well-rounded education, as well as to aid him in interpreting the requirements and to oblige him to meet them in their proper sequence. The responsibility for the selection of courses rests, in the final analysis, upon the student and it is not within the province

of the adviser to refuse approval of a course which the student is entitled to elect. Similarly, it is the primary duty of the student to meet the requirements of his course in their proper order, so that he may not, in his senior year, find himself unable to graduate. At the beginning of the junior year, when the student has selected his major study, an appropriate member of the division in which the major is located becomes his adviser. At the opening of each semester the student is required to consult his adviser concerning his choice of studies, and the adviser must approve the students' elections before he is permitted to enter classes.

2. CREDITS, GRADES, AND POINTS

CREDITS. The unit used in computing the amount of work required for graduation is the *credit,* which represents one hour of class work, or its equivalent in other forms of instruction, per week for one semester together with the necessary preparation. Two or sometimes three hours of laboratory work are considered as the equivalent of one hour of class work. Students in the general courses are expected to earn an average of 15 credits per semester in class and laboratory work, making 30 credits per year, or 120 for the four-year course.

Each student in one of the general courses is required to take class and laboratory work in the amount of 12 to 16 credits per semester. A student who desires to elect fewer than 12 credits must obtain permission in advance from the Dean. A student in his first semester at Wisconsin is not permitted to elect more than sixteen credits. A student who has received a grade of B in *each* subject of the preceding semester may take not to exceed 18 credits. No student will be permitted to count toward graduation more than 18 credits in one semester.

Candidates for the bachelor's degree who desire to graduate in three years may usually do so by obtaining 17 or 18 credits per semester after the first semester of the freshman year, and by attending three summer sessions or taking correspondence courses from the Extension Division or a combination of these two. Students will need to select carefully their work for the summer with reference to the required and elective subjects of the course in which they expect to graduate. A student who expects to shorten his course in this way will necessarily consult with his adviser very carefully before selecting his subjects.

Students taking correspondence courses, however, are reminded of the regulation (see bulletin of the Extension Division) requiring them to return to and deposit with the Recorder of the Extension Division all unfinished assignments or lessons as soon as they enter upon or resume residence work at the University. The penalty for retaining such assignments during residence is forfeiture of the credit for the correspondence course.

EXAMINATIONS. Each study terminates in a two-hour written final examination at the close of the semester; these final examinations are regularly scheduled and the times set may not be changed without special faculty authorization. During the semester two or three one-hour written tests are ordinarily held in all but the most advanced courses.

3. TRANSFERS

Students transferring from special courses, e.g., Chemistry or Premedical, or from another college of the University, to one of the General Courses, will receive no more than 15 credits a semester toward graduation for work already done, except in semesters in which all standings are B or above, when the maximum is 18 credits. They will not receive credit for technical studies of another college, except to the amount and under the conditions stated under Election of Studies Outside the College, section 16 below. Students transferring are in general required to remove an incomplete, a condition, or a failure incurred in any subject in their former college, provided they can credit the subject in question in this college. If not, the subject may be declared

equivalent to a "free elective" by the Executive Committee, on application, after the student has done a semester of satisfactory work in this college. This regulation is applied similarly to transfers within this college. Doubtful cases should be referred promptly to the Executive Committee.

4. ADMISSION WITH ADVANCED STANDING

Students from accredited colleges and universities who have pursued college courses equivalent to those of the University of Wisconsin and who have been granted honorable dismissal may be admitted to this college under the following conditions:

FRESHMAN AND SOPHOMORE YEARS. Inasmuch as freshmen in this college are normally limited in their choice of subjects to English composition, foreign language, general classics, history, mathematics, natural sciences, and drawing, those in other institutions who wish to receive full credit for their work by transfer here should restrict their choice accordingly. In special cases a freshman may take one sophomore subject as specified in paragraph (e) section 22, page 63. Subjects such as education, philosophy, and sociology taken during the freshman year will ordinarily not be credited.

5. RESIDENCE REQUIREMENTS

The minimum residence requirement is 30 credits and 30 grade-points, to be earned in at least two semesters at Madison (or six summer sessions, in no one of which may less than four credits be carried). All the requirements of the major subject must be met, including at least 15 credits and 15 grade-points in advanced work at the University.

All candidates for degrees must expect to take their senior year in residence. They are not permitted to take the advanced work of the major study or the thesis in another institution or by correspondence, since these studies normally culminate in the last year of the undergraduate course. In special cases the Executive Committee of the college, on application to the Dean, may permit a senior who has finished all the specific requirements and the work of his major and thesis, to take not to exceed 6 credits by correspondence to complete the requirements for his degree.

Students who wish to earn a second baccalaureate degree in this college are required to complete the additional studies regularly prescribed for that degree, involving at least one year's additional residence and the earning of at least 30 additional credits.

6. DEFICIENCIES

FAILURES. Students in this college are required to remove failures only in courses specifically required for the degree they seek or the major they present. A failure cannot be removed by correspondence study or by repeating the subject in another college.

CONDITIONS. The grade of condition is given to a student who has carried a subject throughout a semester with a passing average, but who, failing in his final examination, reduces his semester average to some numerical standing between 60 and 69. A condition must be made good by passing a special examination during the student's next succeeding semester of residence at the University or it becomes a failure. If a student repeats in class a subject in which he has incurred a condition, he is excluded from taking the condition examination and must complete the subject in the regular way. Former students not in residence are permitted to enter condition examinations only in case they left the University in good standing. No grade-points are awarded for conditions made good by examination or by special laboratory work. The student is, however, entitled to the grade which his completed work in the course finally justifies.

The usual way of removing a condition is by a successful final examination taken on the day fixed by the rules. If, however, in a course involving both laboratory and classroom work, the condition has been incurred on account of unsatisfactory laboratory or report work, it may be removed by absolving such substantial requirements

as the instructor in charge of the course may prescribe. The removal of this type of condition will take effect on the official date for the removal of conditions. When a condition in such a course becomes a failure, the student may pass the course by repeating that portion of it (laboratory or classroom work) in which the condition was originally incurred, providing the instructor in charge authorizes this arrangement in advance.

INCOMPLETES. An incomplete may be given to a student who has carried a subject *successfully* until near the end of the semester and has then been compelled to quit work on account of illness or other cause beyond his control, leaving the final examination, or the final examination and some limited amount of term work undone. An incomplete is not given to a student who stays away from a final examination unless he proves to the instructor that he was prevented from attending as indicated above. In default of such proof he will be failed or conditioned; even with such proof, if his term work has convinced the instructor that he cannot pass, he will be failed or conditioned. A subject marked incomplete must be completed during the student's next succeeding semester of residence at the University and *not later than the date of the second condition examination* of the semester, or it will lapse into a failure, unless the time limit has been extended in writing by the Executive Committee. An incomplete in a thesis, however, must be removed within 10 days after the close of the semester or summer session in which it is incurred; if it is not so removed, the student is required to re-register for an appropriate part of the thesis (one or more credits). A student may not graduate with an incomplete incurred during the final semester of his senior year.

7. HONORS IN SCHOLARSHIP

Sophomore honors are awarded on the basis of a minimum of two full years of work (not less than 60 credits) completed in residence in the University. A student securing during these two years 135 grade-points, plus 1.5 grade-points for each credit above 60 required in his course, will be awarded Sophomore Honors; a student securing during these two years 165 grade-points, plus 2 grade-points for each credit above 60 required in his course, will be awarded Sophomore High Honors.

Senior honors are awarded on the basis of the academic requirements for the second half of any four-year course, all of which have been completed in residence at the University. A student securing in residence at Madison 135 grade-points, plus 1.5 grade-points for each credit above 60 required in the second half of his course, will be awarded Senior Honors; a student securing in residence at Madison 165 grade-points, plus 2 grade-points for each credit above 60 required in the second half of his course, will be awarded Senior High Honors. This rule will not be construed so as to bar any student from securing Senior Honors who has been permitted to carry *more* than the minimum number of credits during the first two years of his course and *less* than the minimum during the last two years.

Honors in the major may, upon recommendation of the department, be granted at graduation to any student who has done superior work in his major and who has passed with distinction a comprehensive examination on the work offered for his major. Students doing all their work in course, as well as those doing it partly in course and partly outside of course, shall, with the approval of the department, be eligible for such examination and honors.

Thesis honors are granted for an exceptionally fine or original thesis, without consideration of the student's record in other work.

The names of students awarded sophomore honors are bulletined in Bascom Hall; those of students awarded senior and thesis honors and honors in the major are published in the Commencement Register.

8. CLASSIFICATION OF STUDENTS

RANK. A student must have 25 grade-points and at least 25 credits before he may be classified as a sophomore; 58 grade-points and at least 58 credits before he may be classified as a junior; and 88 grade-points and at least 88 credits before he may be classified as a senior.

UPPER AND LOWER GROUPS. At the close of the sophomore year all students in the College of Letters and Science are divided provisionally into two groups on the basis of grade-points earned during the freshman and sophomore years. Students who have a point-credit ratio of at least 1.5 by the end of the sophomore year (or at any subsequent time) are designated as upper-group students. A student's upper-group status continues throughout the remainder of his college course as long as his grade-point average does not fall below 1.5. At the discretion of departments, upper-group students are eligible for more advanced work than other students.

ADVANCED STANDING. Students transferring to the University of Wisconsin from other institutions with from 60 to 90 credits will be regarded as upper-group students after they have completed one semester of work at this University, provided their grade-point average for this semester and subsequently does not fall below 1.5. (See definition for grade-point average in the General Information bulletin or in the time table).

9. SPECIAL STUDENTS NOT CANDIDATES FOR A DEGREE

Persons who meet all the requirements for regular admission to the University, either as freshmen or with advanced standing, may apply to the Executive Committee of the College of Letters and Science for admission as "special students not candidates for a degree." A student admitted on this basis will not receive credit for courses taken and no grades or credits will be recorded. Such individuals must give evidence of seriousness of purpose before their applications for admission on this basis will be approved. A student so admitted may not enter any course for which he lacks the prerequisites as published in announcements and time tables, except by special consent of the instructor therein; nor may he take part in any extra-curricular activity or join any student organization to which the eligibility rules apply. See "eligibility rules" as printed in the first semester time table.

Regular students in good standing may be permitted by the Executive Committee to transfer from a course leading to a degree to the classification of "special students not candidates for a degree."

Special students are assigned to special advisers, to whom they must give evidence of capacity and of application to their university work in order to be permitted to continue.

10. PLACEMENT AND ATTAINMENT EXAMINATIONS

When he commences his college course, each freshman is required to take a *placement* examination in English, in mathematics (if he expects to continue this subject in college), and in any foreign language which he has taken in high school and expects to continue in college. The results of these examinations determine the classes in which the student is permitted or required to enroll. If, as a result of such placement, a student should be required to repeat in college the substantial equivalent of a subject taken in high school, he would receive no college credit for such equivalent. But in the case of English no such non-credit course will be offered (see section 22a).

Any student who so desires may take *attainment* examinations in English, history, mathematics, biology, chemistry, physics, and the foreign languages, with the object in view of proving his mastery of certain subjects required for graduation in his college course and thus of absolving the requirements altogether. The examination in any of these sciences will be approximately the equivalent of the final examination in

the corresponding freshman semester survey course (the so-called "17" course). Success in passing an attainment examination entitles the student to substitute some subject of his own choice for the required subject, but does not reduce the total number of credits required for graduation.

In English there are several tests taken during the Freshman Period and the first week in residence which determine further the question of his exemption from the course. (See section 22a).

Foreign Language Attainment Examinations are designed to determine either (1) *proficiency,* i.e., advanced knowledge, or (2) *intermediate knowledge,* i.e., reading knowledge.

The test for *proficiency* in a language presupposes adequate preparation based on the equivalent of 24 credits secured in college (e. g., four years in high school and two in college, or two years in high school and 16 credits in college, etc.); the test for *intermediate knowledge* is based on approximately half this amount of preparation. Superior students with less than this amount of study and those who have lived abroad or who have acquired a knowledge of foreign language in some other way are encouraged to take the examination. (See calendar for dates on which attainment examinations are held.)

Proficiency in a modern language shall be shown by demonstrating (a) ability to read and comprehend representative passages of literature, (b) the ability to understand and speak simple phrases of the language, and (c) familiarity with the important literary work of some significant period or genre. *Proficiency in Greek or Latin* shall be shown by demonstrating (a) the ability to translate into idiomatic English representative passages of prose and poetry from the fields of the student's previous reading, which shall be substantially equivalent to the satisfactory completion of four years of the language in high school and three semesters in the University, or a similar amount differently distributed, (b) some knowledge of each author's work as a whole and of its historical and cultural background, (c) the ability to translate English sentences involving the common grammatical constructions into Greek or Latin prose.

Intermediate knowledge in a modern language shall be shown by a test involving the ability to pronounce the modern language and to interpret, adequately, modern prose of average difficulty. *Intermediate knowledge in Greek or Latin* shall be shown by demonstrating the ability to translate adequately and explain the grammatical constructions in passages of average difficulty chosen from such portions of at least three Greek or Latin authors as are usually read in high school or college.

Foreign-language attainment examinations are given soon after the opening of the first semester and also near the close of each semester.

11. PHYSICAL ACTIVITY REQUIREMENT

Freshman women are required to take three hours of physical education a week for two semesters. Similarly freshman men have the option of taking one of the following: (a) Physical Education three hours a week for *two* semesters, (b) Band three hours a week for *two* semesters, or (c) Military Science three hours a week for *four* semesters (one credit will be granted toward graduation for each of the four semesters).

Students entering with sophmore standing who have met all the requirements of their freshman year (in the college they attended) and physically disabled students who are certified as such by the Department of Student Health to the Department of Physical Education are exempt from this requirement. Freshmen who desire exemption must make application to the Physical Education Department at the opening of each semester of the academic year; there are no automatic exemptions.

Students entering from secondary schools where they have had the basic ROTC course may take the advanced course for one credit in the freshman year in fulfillment of the general option in military science, or they may elect physical education

or band instruction. In the sophomore year the advanced course may be elected for two academic credits.

Miltary Science, when elected, must appear on the student's study list in the same way as any other regular subject; it may not be elected in addition to an otherwise maximum program.

12. QUALITY OF WORK

A student in any course requiring 120 academic credits for graduation must secure 60 grade-points and at least 60 credits in order to absolve the academic requirements of the first half of his four-year course, and thereafter must secure a grade-point average of 1.0 on all credits taken, whether passed or not, in the second half of his four-year course. A student in any course requiring more than 120 academic credits for graduation must also secure the same ratios for the additional credits required in each half of his four-year course.

13. CERTIFICATE OF JUNIOR GRADUATE

A student who has earned at least 60 credits and 60 grade-points in this College, and who has pursued for at least two years an approved program which would normally lead to the degree of B.A., B.S., or Ph.B., may secure, upon application to the Dean of the college and upon payment of a fee to cover the cost, a certificate of Junior Graduate in Liberal Studies.

14. MAJOR STUDY AND THESIS

At the beginning of his junior year each candidate for a degree shall select a major study in one of the divisions* into which the college is organized and shall be assigned an adviser appropriate to the field in which he expects to concentrate. A division or department may refuse to accept as a major any student with less than a specified point-credit ratio in these subjects of the first two years which lie within the field of concentration, and may likewise reject him if his subsequent achievement falls below the standard set by the division or department with the approval of the faculty of the college.

Within each division certain fields of concentration have been outlined and special fields may be arranged for individual students with approval of the Dean. These fields may correspond to the separate departments in the division or be restricted to groups of subjects within a department, or they may include courses in more than one department. The regular fields at present authorized are announced under the separate departmental headings. (See Departments of Instruction, p. 95.) A few fields which cut across departmental lines or are otherwise irregular are announced below.

The general requirements of the major are as follows: (a) A maximum of 60 credits may be prescribed by the division, including not more than 40 credits within the field of concentration, and not more than 20 credits outside the field of concentration, of which as many as ten may be outside the boundaries of the division. Of the total number of credits required for graduation at least 80 must be secured outside the major department (and indeed outside of any one department), and any course which a student may credit toward his major must be credited toward it. In the major itself, at least 15 credits and 15 grade-points in advanced courses must be secured in residence at Wis-

*The term "division" as used in this and the following sections refers to a group of affiliated departments of the college or to any single department not so affiliated. The present groupings are as follows, and all other regular departments are to be regarded as non-affiliated.
Biology—Botany, Zoology
Language and Literature—Art History, Classics, Comparative Literature, Comparative Philology, English, French and Italian, German, Irish, Polish, Scandinavian Languages, Spanish and Portuguese.
Mathematical and Physical Sciences—Astronomy, Mathematics, Physics
Social Sciences—Economics, Cultural Geography, History, Philosophy, Political Science, Sociology and Anthropology.

consin. Some of the credits in the major may be earned during the first two years. At least as many grade-points as credits must be earned in the major. (c) A thesis of 4 to 6 credits may be prescribed as part of the major, as specified in the detailed announcements of the major requirements.

If a thesis be prescribed by the division, it must represent a scholarly treatment of some phase of the student's work in his major study; the subject thereof requires approval by the student's adviser and the faculty member in general charge of the field of concentration (who is ordinarily the departmental chairman). The thesis shall be typewritten and bound according to specifications furnished by the University Librarian, and after approval by the faculty member under whose guidance it has been prepared shall be deposited in the University Library not later than the second Friday before Commencement. The thesis carries 4 to 6 credits toward the requirements of the major and toward graduation.

15. SPECIAL FIELDS OF CONCENTRATION

MEDICAL SCIENCE. A major in Medical Science is authorized for students in the General Course who pursue the regular three-year premedical sequence and meet both their premedical and special degree requirements. In their senior year such students register in the Medical School as well as in the College of Letters and Science. For a detailed outline of the premedical work, see page 71.

MEDICAL TECHNOLOGY. A four-year course leading to the degree of Bachelor of Science (Medical Technology) has recently been established. The first three years consist of at least 90 credits of general required and elective work and the fourth year is devoted entirely to the major, Medical Technology. In the first three years students will take, in addition to 10 to 13 credits of elective work, a year each of general chemistry, physics, history, physiological chemistry, and medical bacteriology, two years of English, 4 credits of physiology, 4 credits of organic chemistry, 7 credits of zoology, and two years of French or German. The foreign-language requirement may be satisfied either by passing the intermediate examination in French or German, or by completing the fourth semester of French or German at the University of Wisconsin with a grade of C or better. For a detailed outline of the curriculum of this course see the bulletin of the Medical School.

BACTERIOLOGY. Students who wish to prepare themselves for positions in the field of bacteriology are permitted to offer for the B.A., or Ph.B., degree a major in biological sciences, including courses in Medical Bacteriology, Agricultural Bacteriology, and related departments. Such students should consult with Prof. P. F. Clark or Prof. W. B. Sarles.

DIVISION OF LANGUAGE AND LITERATURE. The Division of Language and Literature offers the following fields of concentration:

1. Departmental fields of concentration, corresponding to the separate departments of the Division (See statements under departments concerned).

2. Inter-departmental fields of concentration, which include work in more than one department of the Division. For students exceptionally prepared in two or more foreign languages, whose plan of work cannot be adequately met within the Department of Comparative Literature, special arrangements will be made, upon application to the chairman of the Division.

Supervised Individual Reading. Students who have passed the test for either advanced or intermediate knowledge in a given language and whose general record is of considerably more than average grade, may register for additional language credit, if, in order to further improve their fluency and accuracy in the use of foreign texts, they desire to read under supervision works in the foreign language dealing with subjects related to their major field of study. The texts to be read, which should be of a general and not too technical character, will be agreed upon in consultation between the

student's major department and the language department concerned. Credit for such reading will be language credit based on an examination given by the language department and not credit in the student's major department. Arrangements for such individual reading require the approval, in advance, of the language department concerned and the Dean of the college.

HISPANIC STUDIES. Besides the advanced courses in Spanish language, literature, and civilization offered by the Department of Spanish and Portuguese, there are various other Spanish subjects in the University, making possible for the students a comprehensive preparation in the field of Hispanic studies.

Students intending to pursue these studies should consult the Chairman of the Department of Spanish and Portuguese either in their freshman or at the beginning of their sophomore year. There is available a mimeographed statement containing more detailed information. Registration in this major field of concentration should be effected not later than at the beginning of the junior year. Prerequisites for registration are: (a) completion of all required subjects for the B. A. degree other than foreign languages; (b) two years of college Spanish or a reading knowledge of Spanish as disclosed by the intermediate examination; (c) Economics 1a (General economics). Although not prerequisites for registration, the following courses are recommended for the freshman and sophomore years to enrich the student's background: Economics 1b (General economics); Geography 1-2 (Physical geography), 5 (Regional world geography; Physical aspects) or 17 (Survey of physical geography: Man's natural environment); Geography 3 (Economic geography) or 6 (Regional world geography: Cultural aspects); History 2 (Modern European history); History 3 (European civilization since the fall of Rome); History 4 (History of the United States); Political Science 7 (American government and politics).

Following is a list of the basic courses for this major. If the preparation of the student warrants, some of these courses may be pursued in the freshman and sophomore years.

	Credits
Anthropology 103—Native peoples of Central and South America	3
Art History 157—Patterns and principles of Spanish art (or cognate of Spanish art offered by this department)	2
Economics 151—Latin America: economic development and trade	3
Geography 102—Geography of South America	3
Geography 111—Geography of Middle America	2
History 119—Latin American History History 130—History of Spain, 1000-1825	6
Journalism 121—Reporting Hispanic affairs	2
Political Science 131—The United States and Latin America	3
Spanish 47—Spain and Spanish America of today	4
Spanish 117—Commercial and industrial language practice in Hispanic countries	2
Spanish courses numbered above 100 in the fields of language, besides 117 above 2 credits; literature 4 or 6 credits; and civilization of Spain and Spanish America, 2 credits	8
Total	38

Majors in this field will be expected to do extensive Spanish reading in connection with the courses taken in the various departments.

The electives will be flexible enough to accommodate any individual purpose the student may have. Besides other foreign languages, the following courses are especially recommended for election because of their particular bearing on the major, or for their value in preparation for certain professional opportunities.

Art. Hist 153—Representative painters of the 17th century
Art. Hist. 159—Development of American art
Com. 8 and 9—Accounting
Com. 13—Marketing methods
Com. 31—Business satistics
Econ.-Com. 105—Money and banking
Com. 109—Legal aspects of business relations
Com. 114—Marketing management
Econ.-Com. 136—Transportation problems
Econ.-Com. 137—Corporation finance
Econ.-Com. 156—International trade
Econ. 30—Economic statistics
Econ. 126—International trade in agricultural products
Econ. 153—International finance
Geog. 101—Geography of Europe
Geog. 103—Geography of North America
Geog. 107—Geography of the Mediterranean region
Geog. 127—Industrial geography of the U. S.
Geology 150—Economic aspects of Geology
Hist. 116—American colonial history
Hist. 120—American foreign relations
Hist. 122—American economic life
Hist. 124—Recent history of the U. S., 1901-1939
Hist. 138—History of Europe, 1789-1871
Journ. 120—Interpreting foreign news
Pol. Sci. 25—Survey of world politics
Pol. Sci. 118 and 119—Problems of international law: peace and war
Pol. Sci. 123—American diplomacy
Pol. Sci. 127 and 128—Comparative government
Pol. Sci. 137—International organization and diplomacy
Pol. Sci. 138—Contemporary problems in international relations
Portuguese 1, 10 and 15

Econ.-Com. 251 (Seminary, Latin-American development and trade) and Art History 210 (Seminary, when dealing with a Spanish subject) will be open in exceptional cases to undergraduate students.

Students majoring in Hispanic studies who wish to obtain the University Teachers' Certificate should transfer to the School of Education and fulfill the requirements for a teaching major in Spanish. (See page 64.) They will follow Pre-education Sequence IV. Consult announcement of the School of Education.

MAJOR IN AMERICAN INSTITUTIONS. This major in the Division of Social Sciences is designed for (a) students in the School of Education (b) students planning to enter the Law School (c) students desiring a survey of American life.

The major is administered by a divisional Committee. A student taking this major should have as his adviser a member of this Committee. The assignment of students to advisers is made by the History representative of the Committee. The members of the Committee are: Professors Boegholt (Philosophy), Finch (Geography), Gaus (Political Science), McCormick (Sociology), Nettels, Chairman (History), Perlman (Economics). The major includes the following requirements:

1. A minimum of *forty-five* credits in the Division.

2. History—*Ten* credits in history courses open to freshmen (Ancient, Medieval, Modern, English, European from the Fall of Rome, or the sequence English History followed by English Constitutional History), and *six* credits in addition, to be taken in American History.

3. At least *twenty-nine* credits (or such additional number as to total, with the history credits, at least forty-five credits), to be earned in three departments in the courses listed in section 4. In exceptional instances courses may be selected from a fourth department, with the written consent of the Chairman of the Divisional Committee, given in advance. Not more than *six* credits earned in courses numbered under 100, in addition to the history requirement stated above, will be accepted toward the major.

4. The courses from which selections are to be made are:

Economics

		Credits
1	General Economics	4-6
19	Economic History of the United States	2-3
103	Financial Policies	3
105	Money and Banking	3
117	Outlines of Land Economics	3
119	The Evolution of Industry	3
120	Social Insurance	3
122	Labor Problems	3
123	Labor Legislation	3
124	Taxation	3
127	Cooperative Marketing	3
129	Cooperative Management Problems	2

		Credit
133	Financial History of the U. S.	3
135	Railway Transportation	3
136	Transportation Problems	3
137	Corporation Finance	3
142	Public Utilities	3
144	Capitalism and Socialism	3
145	American Labor History	3
146	Government and Business	3
152	Farmer Movements	3
174	The Labor Market	3
179	Urban Land Economics	3
180	Departmental Reading Course*	2-4
191	The Credit System	3

Geography

3	Economic Geography	3
6	Regional World Geography	3
103	Geography of North America	3
104	Geography of Wisconsin	2
127	Industrial Geography of the U. S.	3
128	Conservation of Natural Resources	3
180	Departmental Reading Course*	2-4

History

1	Medieval History	3-2
2	Modern European History	3-2
3	European Civilization since the Fall of Rome	5-10
4	History of the United States	3
5	English History	3-2
10	Ancient History	3-2
111	History of the West	3
113	American Social History	3
114	The Era of the Sectional Controversy	3
115	The American Revolution	3
116	American Colonial History	3
117	American Constitutional History	3-6
118	Civil War and Reconstruction	3
120	American Foreign Relations	3-6
122	American Economic Life	3-6
124	Recent History of the United States	3-6
141	English Constitutional History	3-6
180	Departmental Reading Course*	2-4

Philosophy

11	Elementary Logic	3
21	Introduction to Philosophy	3
25	Philosophy and the Human Enterprise	3
41	Introductory Ethics	3
111	Applied Logic	3
120	Philosophy of Science	3
132	History of Modern Philosophy	3
139	American Philosophers	3
150	A Philosophy of Democracy	3
180	Departmental Reading Course*	2-4

Political Science

7	American Government	3
13	Municipal Government	3
112	Constitutional Law	3
115	Law in Society	3
120	Political Parties and Public Opinion	3
123	American Diplomacy	2
126	Legislation	3
131	The United States and Latin America	3
134	Local Rural Government	3
135	Municipal Administration	3
137	International Organization and Diplomacy	3
139	State Government	3
140	Far Eastern Politics	3
143	Introduction to Public Administration	3
144	Police Power and Social Legislation	3
152	Legislation for the Conservation of National Resources	3
165-6	American Political Thought	3-6
180	Departmental Reading Course*	2-4

Sociology and Anthropology

46	Introduction to Anthropology	3
125	Rural Sociology	2
132	Introductory Social Statistics	3
139	Social Psychology	3
140	General Sociology	3
141	Poverty and Dependency	3
160	Family and Marriage	3-4
161	Criminology and Penology	3
163	Population Problems	3
176	The Modern City	3
177	Social Legislation	3
180	Departmental Reading Course*	2-4
192	Rural Regional Planning	3
197	Personality and Social Adjustment	3

5. A special paper, to be assigned by a Divisional Committee adviser, may be required of each senior; and general discussion meetings may be arranged from time to time for all students enrolled in the major.

MAJOR IN INTERNATIONAL RELATIONS. Open only to candidates for the B.A. degree, this major (in the Division of Social Sciences) is designed to facilitate an integrated program of training for those students who plan to enter the Foreign Services of the United States Government; who are interested in securing positions with exporting and importing firms, shipping companies, international banking houses, or foreign press services; or who wish to teach international affairs or engage in research in the field.

*Only one 180 course may be counted toward the requirement of the major, but arrangements may be made for a joint program, inclusive of instruction in more than one department.

The major is administered by a Committee of Advisers representing the Departments of Political Science (Professor Pfankuchen), Economics (Professor C. L. Jones) and the interested language departments (Professor Ortega). Concentration in the field of the major will normally begin in the junior year, but sophomore students who contemplate this major should consult with one of the committee members concerning their programs. The requirements for the major will be subject to revision from time to time, but students who have entered upon the work of the major will be held to meet the revised requirements only to the extent that their prior academic obligations permit.

During the freshman year the student's program will consist normally of English History 3 (or both History 1 and 2), foreign language, and mathematics or a science.

The foreign-language requirement is that of the B.A. degree, provided that students enrolled in this major must fulfill the requirement in *not more than two modern* languages. When specializing in a particular region, they must offer proficiency in the language relevant to that region. Proficiency in one modern language and intermediate knowledge of a second one is recommended whenever the language preparation in high school permits. The following gateway courses must be taken early, preferably by the end of the sophomore year: Political Science 7 (American government and politics) and Economics 1a (General Economics). Credits earned in these two gateway courses will not count toward the credits required for the major.

The major includes a minimum of *forty* credits. At the beginning of the junior year the student will confer with a member of the committee, to be assigned an adviser in the chosen field of specialization who will assist him in preparing a sequence of studies covering the work in the major during the last two years. This sequence may be arranged either on a functional or on a regional basis and will be varied to meet the needs of the individual student.

The student's work in the last two years will consist primarily of courses in political science, economics, commerce, history, and foreign language. His program, however, may include work in such related fields as anthropology, geography, geology, journalism, philosophy, sociology, and social psychology, or, in general, any courses which, in the opinion of the student's adviser, may be necessary to provide an integrated program to fit his individual purpose.

A few illustrative programs of specialization within the new major field are listed below. The more fundamental courses are starred (*). Work in the major will be completed by electing unstarred courses from an appropriate list, along with any other courses in related departments which, in the adviser's opinion, may be desirable. Among such courses in related fields the following are of special significance: Philosophy 150 (A philosophy of democracy), and 132 (History of modern philosophy); Anthropology 102 (Peoples of Africa), 103 (Native peoples of Central and South America), 104 (Peoples of Europe and Asia); Sociology 162 (Population problems), and 237 (Psychology of public opinion and leadership).

PREPARATION FOR THE AMERICAN FOREIGN SERVICE

ADVISER, PROFESSOR PFANKUCHEN

Political Science

		Credits
* 25	Survey of world politics	3
*112	Constitutional law	3
*118	International law: peace	3
119	International law: War and neutrality	3
*123	American diplomacy: Organization and practice	2
127	Comparative govt.: Democracies	3
128	Comparative govt.: Dictatorships	3
131	The United States and Latin America	3
*137	International organization and diplomacy	3
138	Contemporary problems in international relations	2
140	Far Eastern politics	3

Economics

		Credits
*105	Money and banking	3
126	International trade in agricultural products	3
*153	International finance	2
*156	International trade	3

Commerce

109	Legal aspects of business relations	2

History

*4a-b	History of the United States	6
*120	American foreign relations	3-2
124	Recent history of the United States	3-4
138	History of Europe 1789-1871	6
*139	History of Europe 1871-1940	6
143	The British Empire since 1815	6
150	Political and diplomatic history of the British Isles	6
178	Recent German history	2-3

Geography

*3	Economic geography	3
	or	
*6	Regional world geography: cultural aspects	3

Geology

*150	Economic aspects of geology	2

SPECIALIZATION IN THE LATIN-AMERICAN REGION

ADVISER, PROFESSOR ORTEGA

Commerce

		Credits
†8	Elements of accounting	3
9	Intermediate accounting	4
†13	Marketing methods	3
31	Business statistics (or Econ. 30)	3
109	Legal aspects of business relations	2
114	Marketing management	2
126	International trade in agricultural products	3
136	Transportation problems	2-3
137	Corporation finance	3
*151	Latin America: Economic development and trade	3

Economics

30	Economic statistics (or Com. 31)	3
*105	Money and banking	3
*153	International finance	2
*156	International trade	3

Anthropology

103	Native peoples of Central and South America	3

History

*4a-b	History of the United States	6
*119	Latin American history	2-3
120	American foreign relations	3
122	American economic life	2-3
124	Recent history of the United States	3-4

Political Science

		Credits
* 25	World politics	3
118	International law: Peace	3
119	International law: War and neutrality	3
123	American diplomacy	2
127	Comparative govt.: Democracies	3
128	Comparative govt.: Dictatorships	3
*131	United States and Latin America	3
137	International organization and diplomacy	3
138	Contemporary problems in international relations	2

Journalism

*121	Reporting Hispanic affairs	1

Geography

5	Regional world geography: Physical aspects	3
6	Regional world geography: Cultural aspects	3
*102	Geography of South America	3
103	Geography of North America	3
*111	Geography of Middle America	2
127	Industrial geography of the U. S.	3

Geology

150	Economic aspects of geology	2

Spanish students electing specialization in the Latin-American region must include proficiency in Spanish in their general foreign-language requirement. Fundamental courses to be covered in their proficiency preparation, after the second year, are: Spanish 27 (Commercial letter writing), Spanish 47 (Spain and Spanish America of today), Spanish 117 (Commercial and industrial language practice in Hispanic countries), Spanish 151 (Spanish American civilization).

Students specializing in the Latin-American region will be required to write a thesis on a Latin-American topic in the Departments of Economics, Geography or Political Science, under the supervision of Professor Chester Lloyd Jones.

†If elected must be in addition to the 120 credits required for graduation.

SPECIALIZATION IN THE ECONOMIC PHASES OF INTERNATIONAL RELATIONS

ADVISER, PROFESSOR LLOYD JONES

Economics

		Credits
19	Economic history of the U. S.	3
30	Economic statistics (or Com. 31)	3
*105	Money and banking	3
*119	Evolution of industry	3
*126	International trade in agricultural products	3
146	Government in business	3
*153	International finance	2
158	Industrial concentration	3

Commerce

		Credits
†8	Elements of accounting	3
9	Intermediate accounting	4
31	Business statistics (or Econ. 30)	3
114	Marketing management	2
137	Corporation finance	3
151	Latin America: Economic development and trade	3
*156	International trade	3

Political Science

* 25	Survey of world politics	3
*118	International law: Peace	3
119	International law: War and neutrality	3
123	American diplomacy: Organization and practice	2
*137	International organization and diplomacy	3

Political conditions of special regions of interest to certain students are treated in such courses as Pol. Sci. 127 (Comparative gov't: Democracies), 128 (Comparative dictatorships), 131 (The U. S. and Latin America), 132 (Africa in world politics), and 133 (The Near and Middle East in World Politics).

History

		Credits
*4a-b	History of the United States	6
120	American foreign relations	2-3
*122	History of American economic life	2-3
*124	Recent history of the United States	3-4
138	History of Europe 1789-1871	6
*139	History of Europe 1871-1940	6

The history of special regions of interest to certain students is treated in courses such as History 143 (The British Empire since 1815), 146 (History of the German people), 178 (Recent German history), and 151 (Economic and Social history of the British Isles).

Geography

*3	Economic geography	3
5	Regional world geography: Physical aspects	3
*6	Regional world geography: Cultural aspects	3
106	Agricultural geography	3
*127	Industrial geography of the U. S.	3

Geography of special regions of interest to certain students is treated in courses such as 101 (Geography of Europe), 102 (Geography of South America), 103 (Geography of North America), 107 (Geography of the Mediterranean region), 111 (Geography of Middle America), and 110 (Geography of Asia).

Geology

150	Economic aspects of geology	2

DIVISIONAL MAJOR. This major has been established in order to give the student a broader education with less specialization than he would ordinarily receive in a departmental major.

As soon as a student decides to select the Divisional Major, at the beginning of the junior year or earlier, he must choose one of the special advisers assigned to the administration of this major.

A student electing this major meets all the general requirements for the B.A., or the Ph.B., degree (see sections 21 and 24) and must distribute his required and elective courses so as to include the following courses taken in college:

(a) *Twelve* credits in English (4-6 credits of comparative literature may be counted as English for this requirement).

(b) *Eighteen* credits in a single foreign language, foreign literature in translation, art history, general courses in classics, and such courses in art education and music as are open to election by students in the College of Letters and Science.

(c) *Ten* credits in history.

(d) *Fifteen* credits in human relations (economics, cultural geography, political science, psychology, sociology and anthropology).

(e) *Six* credits in philosophy.

(f) *Eighteen* credits in mathematics and science (preferably including a semester each in mathematics, physical science, and biological science).

(g) *Twenty* credits in courses numbered over 100 in one division. (See footnote, page 50).

16. ELECTION OF STUDIES OUTSIDE THE COLLEGE

The general rule governing election of studies outside the College of Letters and Science is that students in any of the B.A. or Ph.B. courses are allowed to elect a maximum of 20 credits in other colleges and schools of the University under conditions specified below. However, students may elect up to 26 credits in the Law School and 36 in the Medical School under the special provisions outlined in the last two paragraphs of this section. Moreover, certain courses in other colleges listed under "Exceptions" below are counted regularly as Letters and Science subjects and so do not come under these rules.

Students in the B.S. courses may credit studies taken outside the college only if such studies are required in their respective courses.

The Schools of Commerce, Journalism, Music and the Library School are administrative subdivisions of the College of Letters and Science. Students may elect certain (unstarred) studies in the departments of Commerce and Journalism without special permission; rules for enrollment in music subjects may be found on page 89 and for admission to the Library School on page 85. Non-pharmacy students are are not permitted to elect studies in pharmacy without written permission of the Dean of the College.

General Conditions. (a) The student must have completed the work of the freshman and sophomore years of the College of Letters and Science, including those studies which normally come in the freshman and sophomore years at Wisconsin. This means that a B.A. student, to enjoy the privileges of this rule, must have been promoted to the junior year and must have completed one year of English composition, one year of English literature, the science-mathematics-history requirement, and four semesters of foreign language *in college* unless the language requirement has already been satisfied. (See sections 21-23 below.) Ph.B. students must have been equally industrious in completing requirements of their course; in particular, they must have completed their English and 20 credits in science and mathematics (requirement b), together with one of the options under requirement c. (See sections 24-26 below.)

(b) The student must be spending at least two full years in residence for the bachelor's degree. That is, studies outside the college may not be credited by students who have been granted more than two years of credit for work completed in another institution or by those whose residence work is reduced below two years by correspondence study.

(c) Certain courses, intended primarily for students of other colleges but offered by departments of the College of Letters and Science (e.g., Math. 51, Physics 51, etc.) are open in the same way as courses intended primarily for students of the College of Letters and Science.

(d) Not more than 5 of the 20 credits may be earned in either semester of the junior year.

(e) Elections must be approved by the Dean of the College of Letters and Science. Such approval will be endorsed on the study list in each case in advance, and on the student's permanent record in the Registrar's office. Courses which are parallel to Letters and Science courses will be approved only for special cause. Courses which involve a large manual or routine technical element will ordinarily be approved only as extras. Special consideration, however, will be given to programs directed to a definite educational end.

Art Education 50, 51, 52, 54, 55, 56, 62, 70, 71, 120, 140, 160, and 168; all courses in Biochemistry, Forestry and Wood Technology, Genetics, Plant Pathology, and Soils, although falling under the Twenty Credits Rule, do not require the permission of the dean, provided the students electing them meet the specific prerequistes laid down for them.

EXCEPTIONS. The following courses, offered in other schools and colleges of the University, do not come under the above rules; they are open to election in the same way as regular Letters and Science subjects to all students who can meet the specific prerequisites for them.

Agrcultural Bacteriology courses
Medical Bacteriology courses
Drawing 1, 2, 3
Education 106, 108, 119, 120, 123

LAW SCHOOL. Candidates for the B.A. or Ph.B. degree may count toward either of these degrees certain credits earned in the Law School, providing their elections outside the college have been confined to that school. If they have completely satisfied the conditions specified in paragraphs (a) and (b) above, a maximum of 26 credits may be counted. If, however, they were admitted to the Law School without having met all the specific requirements of paragraph (a), the maximum is 15 credits, and such students must earn at least 40 credits acceptable toward their degree in residence in this college.

MEDICAL SCHOOL. Candidates for the B.A. and for the B.S. degree in medical science are permitted to major in medical science; they may register in the Medical School in their senior year and may count toward their degree the full work of the first-year medical course, 36 credits. Such students must earn at least 90 credits in Letters and Science and meet all the regular premedical requirements as outlined on page 71.

17. TRANSFER TO THE LAW SCHOOL; PRE-LEGAL STUDIES

Students in any of the B.A. or Ph.B. courses at Wisconsin are eligible to transfer to the Law School as regular students when they have (1) received the bachelor's degree or (2) completed three academic years of satisfactory work with a grade-point average of at least 1.3, including those studies which normally come in the freshman and sophomore years at Wisconsin. This means that a B. A. student, to be eligible for transfer, must have completed the year of English composition, the year of Sophomore English (course 30, 32, 33 or 40), the science-mathematics-history requirement, and four semesters of foreign language *in college* unless the language requirement has already been satisfied. Similarly a Ph.B. student must have completed, before he will be eligible for transfer, the English, the twenty credits in "science and mathematics," together with *one* of the options under requirement c. (See sections 24-26 below.) "Three academic years of satisfactory work" means that a student must be eligible to register as a senior in the College of Letters and Science (subject to the provisions of section 12), with a grade-point average of 1.3.

Students transferring to the Law School under these provisions may credit not to exceed twenty-six law credits as free electives toward their B.A. or Ph.B. degree, provided, however, that they secure at least thirty-four credits in residence at this University in regular Letters and Science courses, and take no other work for credit by correspondence or under the Twenty Credits Rule (see sec. 16).

Students entering the College of Letters and Science with the intention of meeting the requirements for transfer to the Law School, should, in their three years of preparation, complete all or almost all the requirements for their Letters and Science majors; reasonable foresight will enable them to do this.

Students who complete at the University of Wisconsin the requirements in Letters and Science for entrance to the Law School must meet the requirements of the College of Letters and Science, set forth above, even though they may have entered Wisconsin with advanced standing.

Any major in Letters and Science, energetically carried with the general degree requirements, will furnish adequate preparation for the study of law. But the Law School Faculty believes that, as a rule, the student intending to study law should choose a field of concentration in the division of the social sciences (economics, cultural geography, history, philosophy, political science, sociology), and that, in any event, when he begins the study of law he should have acquired some understanding of the economic and political life of the United States and of Anglo-American constitutional history, as well as some acquaintance with philosophy and social psychology. Consult the bulletin of the Law School for specific recommendations in this respect.

By availing themselves of either this section or section 16, students may earn both the undergraduate degree and the law degree in six years. Indeed students who do not secure their arts degrees in addition to their law degrees will be at a disadvantage.

18. ELECTION OF STUDIES IN THE LAW SCHOOL

Juniors in any of the B.A. or Ph.B. courses who satisfy the requirements of section 16 may elect a course or courses in the Law School under the provisions of that section. However, only those Law School courses will count toward a law degree which have been carried *after* the student has met the entrance requirements of three years of Letters and Science studies outlined in the preceding section; retroactive credit is not allowed.

19. UNIVERSITY TEACHERS' CERTIFICATE

The University Teachers' Certificate is not granted to students of the College of Letters and Science excepting those registered in special courses (Chemistry, Commerce, Humanities, Journalism, Music, etc.), who may become candidates for the certificate without losing their regular status by registering in both the School of Education and the College of Letters and Science during the junior and senior years.

Students not in one of the special courses who wish to be recommended for the University Teachers' Certificate are required to transfer to the School of Education in the junior year as candidates for the degree of Bachelor of Science (Education). See page 64.

In order to qualify for the University Teachers' Certificate, special course students must meet the following requirements:

I. Completion of all regular requirements of the special course, plus four additional credits and four grade-points, if only 120 are ordinarily required for graduation from that course; if more than 120 are ordinarily required for graduation, two further additional credits will be necessary (e.g., for graduation in the chemistry course, 132 credits will be required.)

II. Completion of the following professional requirements, 18 credits:
Educ. 73—The child: his nature and his needs, three credits
Educ. 74—The school and society, three credits
Educ. 75—The nature and direction of learning, five credits
A course in the teaching of the major subject (senior year) five credits
*Electives in the Department of Education, two credits

III. Completion of the special requirements for teaching a major subject or a major subject and one or two minor subjects, as outlined under the appropriate departmental heading in the bulletin of the School of Education.

*May include a two-credit course in the teaching of the minor subject.

IV. Recommendation of the departments of the major and minor subjects, or the responsible authorities of the special courses, as to fitness for teaching.

V. Presentation of a certificate of physical health and fitness from the University Medical Examiner.

20. ADVANCED INDEPENDENT WORK

A student who has taken his freshman and sophomore work at the University of Wisconsin, whose grade-point average for these first two years' work is 2.6 or higher may be permitted by the major division or department of his choice to pursue Advanced Independent Work during his last four semesters. At the inception of this Advanced Independent Work, the major division or department shall outline for the student a four-semester plan of study, a whole or part of which is to be pursued independently of course and classroom requirements, and which shall include a thesis. Upon recommendation of the division or department concerned and upon approval by the Graduate Office of work done on the thesis, such a student may be admitted to the Graduate School at the end of the seventh semester, thereby becoming subject to its regulations. He will be required to: 1, Meet the general requirements (outside the major) for the B.A. (or B.S.) degree; 2, Pass a comprehensive examination set by his division or department, covering the last four semesters' work within the major; 3, Submit his completed thesis for the approval of a committee of three appointed by the Graduate School. When he has completed these requirements to the satisfaction of his division or department and the Graduate School, he shall be granted the bachelor's degree (as of the close of the seventh semester) and the master's degree.

The eligible student will ordinarily begin his Advanced Independent Work at the start of his fifth semester. If for any reason he does not begin it until the start of his sixth semester, he must pursue it for four semesters as above, thus qualifying for his bachelor's and master's degree at the end of his ninth semester. A student may not begin Advanced Independent Work after the sixth semester.

In many divisions and departments Advanced Independent Work of a modified sort, leading to the B.A. with Honors, is open to students whose grade-point averages for the first two years' work are below 2.6, but who are accepted for this modified course of independent study by their major divisions or departments. Such students have no connection at any time with the Graduate School, and their theses are subject entirely to divisional and departmental regulations.

A third sort of independent work, not necessarily involving candidacy for honors, permits "upper-group" students to elect independent work in lieu of a regular course or courses. The following is the approved procedure: the student and professor offering the course shall fill out and sign a form indicating the nature of the "180" work to be pursued by the student. If the study plan is approved by the chairman of the department in which the course is offered, he shall retain the approved plan for his files and initial the election on the student's study list. The election then becomes effective when the student's adviser approves the study list. Reports and examinations on this work shall be kept in the records of the department and shall be available for future reviews of the employment of the "180" course.

III. THE B.A. GENERAL COURSE

21. OUTLINE OF CURRICULUM

(a) ENGLISH: 12 credits, as follows: 6 credits in freshman composition; 6 credits in sophomore literature. (See section 22a for exemption from freshman composition.)

(b) SCIENCE-MATHEMATICS-HISTORY: Two of the following: natural science, 10 credits, *in courses with laboratory or field work;* mathematics, 8 credits; history, 6 credits, *in a continuous year course.* If the student has had no history or no science in high school, he is advised to take a year course in the subject lacking. A student is

not permitted to repeat in college, for credit, the equivalent of a course in mathematics which he has had in high school.

(c) FOREIGN LANGUAGE: Students may absolve this requirement by one of the following methods, or by a combination of both:

I. *By presenting 27 credits* in one language or 32 credits in two or three of the foreign lauguages specified below. These credits may have been earned partly in high school and partly in the University, or wholly in the University. Eight is the minimum number of credits in a single language which will be accepted toward this requirement; at least 16 credits must be in one language.

II. *By passing attainment examinations.* (See section 10). When attainment examinations are used to satisfy the foreign-language requirement, the language credits already earned in college count as electives toward the credits required for graduation.

To fulfill his foreign-language requirement, a student may, if he desires, use a combination of the two methods outlined above; he may pass the intermediate examination in one foreign language and present 16 credits additionally in one or two languages.

High-school work is accepted in satisfaction of the foreign-language requirement at the rate of four university credits for one unit up to the amount of six units or 24 credits. But every candidate for the B.A. degree who does not meet the foreign-language requirement by attainment examinations must secure at least *eight* foreign-language credits *in college*. A student is not permitted to repeat in college, for credit, the equivalent of a course in foreign language which he has had in high school.

French, German, Classical Greek, Hebrew, Irish, Italian, Latin, Norse, Polish, and Spanish may be offered for entrance; these languages and, in addition, Portuguese, may also be offered for graduation. Students choosing a foreign-language major must present at least eight credits in a second foreign language.

Students entering from foreign countries where they have studied English as a foreign language in recognized secondary schools or colleges, may be allowed not more than four entrance units for their work in English (and, of course, as partial fulfillment of the foreign language required for graduation). Such students, including those entering with advanced standing, will take the preliminary tests in freshman English administered at the beginning of each semester, and those who fail to pass these tests must do so within two semesters or withdraw. Those presenting English to meet the foreign-language requirement for graduation must present at least 16 credits (or pass an intermediate knowledge test) in one foreign language other than their mother tongue and must continue such foreign language at this University for at least one year.

(d) MAJOR STUDY AND ELECTIVES to total 120 credits. (See section 14 above.)

22. STUDIES OF THE FRESHMAN YEAR

(a) ENGLISH. Only one subject is definitely required of all first-year students, viz., English 1, (freshman composition), three credits per semester.

By recent vote of the University Faculty, a student refused admission to English 1a on the basis of the English placement test (see section 10, page 47) must henceforth make up his deficiency by tutoring, correspondence study, or otherwise. His schedule will automatically be reduced to 12 credits, in order that he may prepare to pass the test which is given at the beginning of each semester. If he fails to pass the test by the beginning of his third semester, he must withdraw from the University until he does so.

Those Letters and Science freshmen, however, who pass the exemption examination in Freshman English are not required to take English 1 in the University. (This examination is given at the beginning of the second week in residence.) They may as freshmen, elect in its place English 30, 32, 33, or 40 (the B.A. sophomore requirement), or English 2 or 3, or they may postpone further work in English to the sophomore year.

Students earning a grade of A in the first semester of English 1 may, if they so desire, omit the second semester of it.

On the completion of English 1 a provisional pass mark is given; if at any time later in his course a student is reported as deficient or careless in English composition he may be required to take additional work in that subject.

The other subjects, sufficient to make up a program of 12 to 16 credits for the semester are to be chosen from the groups listed below, composed of subjects which extend for two semesters, unless otherwise indicated.

(b) SCIENCE-MATHEMATICS-HISTORY. At least one subject must be chosen from this group.

SCIENCE—Continuous year courses:

Botany 1, 2—five credits per semester
Chemistry 1—five credits per semester
Geography 1, 2—five credits per semester
Geology 1—five credits per semester
Physics 1 or 31—five credits per semester
Zoology 1, 2—five credits per semester

SCIENCE—Elementary survey courses: These are semester courses less specialized than the continuous year courses.

Astronomy 17—three credits, first and second semesters
Botany 17—three credits, second semester
Chemistry 17—four credits, second semester
Geography 17—four credits, first semester
Geology 17—three credits, second semester
Physics 17—four credits, second semester
Physiology 17—four credits, first semester
Zoology 17—three credits, first semester

MATHEMATICS—Semester courses repeated each semester:

Mathematics 1a (college algebra)—four credits
Mathematics 1b (trigonometry and analytical geometry)—four credits
Mathematics 3a (algebra and trigonometry)—four credits
Mathematics 3b (analytic geometry and introductory calculus)—four credits
Mathematics 7 (theory of investment)—four credits

In general students are required to present one full year of mathematics to satisfy the mathematics option for the B.A. degree. However, students who have successfully passed either Mathematics 1b or 3b, will be regarded as having fulfilled the mathematics option for the B.A. degree, but students who graduate in Commerce will fulfill the mathematics option for the B.A. degree if they carry Mathematics 7 successfully. Mathematics 7 will not count towards the optional requirement for the B.A., B.S., or Ph.B. degree except for students graduating in the School of Commerce.

HISTORY—Continuous year courses:

History 1 (Medieval)—three credits per semester
History 2 (European)—three credits per semester
History 3 (European civilization since the fall of Rome)—five credits per semester
History 5 (English)—three credits per semester
History 10 (Ancient)—three credits per semester

Students may take more than one of these courses in the freshman year. If they elect two of History 1, 2, 5, or 10, they will do the full work of one course receiving three credits; in the other course they will omit much of the collateral reading and reports and will receive two credits. If only one of these courses is taken, it must be for three credits; if two or more of them are taken, the additional ones must be taken for two

credits per semester. Students who take History 3 cannot elect History 1 or 2; they may take History 5 or 10, each for 2 credits a semester.

(c) FOREIGN LANGUAGE. Normally each student is required to pursue one foreign language during his freshman year.

The languages at present available include French, German, Classical Greek, Irish, Italian, Latin, Norse, Polish, Portuguese, and Spanish. The number of credits per semester varies from three to four, depending on the degree of advancement of the student.

A student who continues in college a foreign language which he has studied in high school is assigned to a class on the basis of a placement test (see section 10) and is subject to promotion or demotion at the end of the first few weeks as determined by the quality of his classwork; a second test may then be given if the student should be dissatisfied with his placement.

No credit whatsoever will be given for college courses which are substantially equivalent to those completed in high school.

(d) FREE ELECTIVES

Freshman forum—1 credit per semester
Drawing 1, 2 (mechanical drawing)—three credits per semester
Art Education 50, 51 (freehand drawing)—three credits per semester
General Classics 41 (Greek life and literature)—two or three credits, first semester
General Classics 42 (Roman life and literature)—two or three credits, second semester
General Classics 51 (Classical Mythology)—two credits, first semester
Geography 5, 6 (Regional world geography)—3 credits per semester

(e) Freshmen who have a percentile ranking above 92 as determined by standards established for high-school students—at present the Henmon-Nelson test of Mental Ability—and who are in the highest quarter of the high-school graduating class; or those who, if their aptitude test rating is not available, are certified as ranking in the upper *ten per cent* in their high-school graduating class, may elect in each semester of their first year one course listed in the time table with the prerequisite of sophomore standing.

23. STUDIES OF THE SOPHOMORE YEAR

In the sophomore year the student must continue his English for two semesters, as well as his foreign language, unless these requirements have already been met; likewise his history, mathematics, or science, unless this group requirement has been absolved in his freshman year, together with additional Letters and Science courses necessary for a program of 12 to 16 credits.

IV. THE Ph.B. GENERAL COURSE

24. OUTLINE OF CURRICULUM

(a) ENGLISH: 6 credits in freshman composition are required of all (see section 22a); in addition, 3 credits in intermediate composition are required of all excepting those who fulfill option 3 under (c) below, or who complete successfully one year of foreign language in college, or who carry a semester of English 3 for three credits.

(b) SCIENCE AND MATHEMATICS:* A total of 20 credits in either mathematics or natural science or in both. The science must include laboratory or field work. If both science and mathematics are offered, no less than two semesters of each may be counted toward the requirement except with the consent of the dean in charge.

*Mathematics 7 does not count towad the optional requirement for the Ph.B. degree except for students graduating in the School of Commerce.

(c) Two of the following groups:

1. Philosophy and psychology; or mathematics—10 credits in one of the two. Mathematics may not be offered both here and under (b) above.
2. History, 10 credits, to be taken in year courses, excepting that courses in the "hundred" group may be credited by semesters.
3. Foreign language, 14 credits (to be earned in college) not more than 8 of which may be in a first year college course; or intermediate knowledge in one foreign language, as disclosed by an attainment examination (see section 10).

(d) Major and electives to total 120 credits. See section 14 above.

25. STUDIES OF THE FRESHMAN YEAR

The subjects of the B.A. course are open to freshmen in this course, and on the same terms. (See section 22).

26. STUDIES OF THE SOPHOMORE YEAR

The study list for the sophomore year must include three credits of English 2, intermediate composition, unless the student is relieved of this requirement. (See section 24, subsection a.) The study list must also include whatever subjects are necessary in order freshman year. If the philosophy and psychology option is chosen, work on it should commence during the sophomore year.

V. TRANSFER TO THE SCHOOL OF EDUCATION

Students desiring to major in Art Education or Applied Art or in Physical Education will register in the School of Education at the beginning of the freshman year; those desiring to pursue a teaching major in an academic subject will ordinarily transfer to the School of Education, as specified herein. (See also section 19.)

Students are eligible for transfer to the School of Education when they have satisfactorily completed two years of study in one of the General Courses of the College of Letters and Science. However, no student will be accepted into the School of Education unless his scholastic record is sufficiently high to indicate the probability of success in some teaching field. Applicants for transfer are also required to present evidence of proficiency in speech in the form of either (a) a rating by the Speech Examination Committee of the School of Education, or (b) a grade in Speech 1 (Fundamentals of Speech—3 cr.).

Students who expect to enter the School of Education are advised to adapt the requirements of the first two years of one of the General Courses to the requirements for graduation from the School of Education, in order to obviate the necessity of spending more than four years in earning the B.S. (Education) degree. Any one of the four special sequences listed below will serve to accomplish this purpose; numbers I and III fulfill the Ph.B. requirements and numbers II and IV the B.A. requirements.

Pre-Education Sequences—Students who expect to transfer to the School of Education should select one of the following sequences:

SEQUENCE I

A. No foreign language required.

B. Required: English composition, 9 cr. (English 1 and 2a); history, 10 cr.† social sciences, 6 cr.‡; philosophy, 6 cr. or mathematics, 8 cr., or the completion of Mathe- regular year courses or in elementary survey courses numbered 17, or both.

SEQUENCE II

A. Required: Intermediate knowledge of one language based on attainment examination.

B. Required: English literature, 6 cr.; English composition, 6 cr.; history, 6 cr.†; social

sciences, 6 cr.‡; philosophy, 6 cr. or mathematics, 8 cr., or the completion of Mathematics 2 or 3**§; natural science, 10 cr.* in elementary survey courses or in regular year courses, or both.

SEQUENCE III

A. Required: Intermediate knowledge of one language based on attainment examination.

B. No English literature required. Required: English composition, 6 cr.; history 6 or 10 cr.†; social sciences, 6 cr.‡; mathematics, 10 or 8 cr. or philosophy 10 or 6 cr.**§; natural science, 20 cr.* in regular year courses or in elementary survey courses numbered 17, or both. (If history is elected for 6 credits, mathematics or philosophy must be elected for 10 credits; if history is elected for 10 credits, mathematics or philosophy should be elected for 8 or 6 credits, respectively.)

SEQUENCE IV

A. Required: Proficiency in one foreign language, or intermediate knowledge in two foreign languages, or intermediate knowledge in one foreign language plus 10 cr. in literature courses in that language based on attainment examination.

B. Required: English composition, 6 cr.; English literature, 6 cr.; two of the following: (a) history, 6 cr.† and social sciences, 6 cr.‡; (b) mathematics, 8 cr.§, or the completion of Mathematics 2 or 3; (c) natural science, 10 cr.* in elementary survey courses or in regular year courses or both.

VI. COURSE IN CHEMISTRY

J. H. MATHEWS, DIRECTOR, PROFESSOR OF CHEMISTRY

The purpose of the Course in Chemistry is to train competent chemists for industrial, governmental, and teaching positions. Chemical control and research are indispensable in most of our governmental agencies and in practically every industry. Their research and experimental laboratories must look to the universities for trained chemists. Positions in these laboratories are highly desirable, for they afford specialized training which often leads to excellent positions. The field of chemistry is also unusually attractive for the teacher. By personal research, through the dissemination of useful chemical information and by the development of a wider appreciation of scientific knowledge, he has an exceptional opportunity to play an important role in the social, economic, and industrial development of the nation. For the higher positions in the field of chemistry it is highly desirable that the four-year course be followed by graduate work in chemistry.

The curriculum of the Course in Chemistry is designed to give a broad foundation in the chemical and related sciences. It does not profess to train chemists for special industries, for each industry has its special problems and methods. In order to broaden the educational program, the course provides for a substantial amount of elective and required work outside of the field of chemistry. Three options are offered—a general option, an option for industrial chemists, and an option for food or sanitary chemists. Specialized training along the lines of soil chemistry and physiological chemistry may be obtained by electing courses in these subjects along with the required studies in the general course in chemistry.

REQUIREMENTS. 130 credits are required for graduation. Students frequently find it desirable to absolve part of the requirements during one or more summer sessions.

*Must include at least one semester course in the biological sciences, zoology being strongly recommended. It is recommended that th rest of the science requirement be met in the physical (non-biological) sciences.

**Philosophy 21 (Introduction to philosophy), 3 credits, and Philosophy 11 (Elementary logic), 3 credits are required.

†Must include a year course in European or American history.

‡Political Science 7 (3 cr.), Geography 6 (3 cr.) and economics or sociology (3 cr.) are recommended.

§Mathematics 7 may not be counted toward this requirement.

The work of the freshman year is identical in each of the three options, and in all of them a year each of general inorganic, analytical, organic, and physical chemistry is required. The equivalent of at least courses 2a and 2b in German and courses 1a and 1b in French is required, but high-school work in these languages may be counted toward this requirement. A thesis, embodying the results of a detailed experimental investigation, is required in the senior year.

Admission to the junior year is restricted to students who have at least a 1.5 grade-point average for the first two years' work in all chemistry, mathematics, and physics courses combined.

COURSE IN CHEMISTRY

LEADING TO THE DEGREE OF BACHELOR OF SCIENCE (CHEMISTRY)

FRESHMAN YEAR (all options)

First Semester	Credits	Second Semester	Credits
Chem. 4a—General chemistry	5	Chem. 4b—General chemistry and qualitative analysis	5
Math. 1a or 3a	4	Chem. 3—Qualitative analysis	1
German	4	Math. 1b or 3b	4
Engl. 1a—Freshman composition	3	German	4
Physical activity requirement	0-(1)	Engl. 1b—Freshman composition	3
		Physical activity requirement	0-(1)
	16		17

GENERAL OPTION

SOPHOMORE YEAR

Chem. 11a—Quantitative analysis	5	Chem. 11b—Quantitative analysis	5
German	3	German	3
Physics 31—General physics	5	Physics 31—General physics	5
Math. 101a or 103a—Calculus	3	Math. 101b or 103b—Calculus	3
	16		16

JUNIOR YEAR

Chem. 120, 121—Organic chemistry	5	Chem. 120, 121—Organic chemistry	5
Chem. 130, 131—Physical chemistry	5	Chem. 130, 131—Physical chemistry	5
French	4	French	4
Elective	3	Elective	3
	17		17

SENIOR YEAR

Chem. 100—Thesis	3	Chem. 100—Thesis	3
Chem. Engr. 15—Industrial chemistry	3	Chem. Engr. 15—Industrial organic chemistry	2
Electives	10	Agr. Bact. 2—Survey of bacteriology	4
		Electives	6
	16		15

Of the 22 elective credits, at least 10 must be taken in subjects other than chemistry.

OPTION FOR INDUSTRIAL CHEMIST

SOPHOMORE AND JUNIOR YEARS

Same as sophomore and junior years of General Option

SENIOR YEAR

Chem. 100—Thesis	3	Chem. 100—Thesis	3
Chem. Engr. 15—Industrial chemistry	3	Chem. Engr. 15—Industrial organic chemistry	2
Chem. Engr. (elective)	2	Chem. Engr. (electives)	4
Electives	8	Electives	6
	16		15

Of the 20 elective credits, at least 10 must be taken in subjects other than chemistry or chemical engineering.

OPTION FOR FOOD CHEMIST OR SANITARY CHEMIST

SOPHOMORE YEAR

Chem. 11a—Quantitative analysis	3	Chem. 11b—Quantitative analysis	4
German	3	German	3
Physics 31—General physics	5	Physics 31—General physics	5
Botany 1—General botany	5	Agr. Bact. 2—Survey of bacteriology	4
	16		16

JUNIOR YEAR

French	4	French	4
Chem. 120, 121—Organic chemistry	5	Chem. 120, 121—Organic chemistry	5
Chem. 119—Organic analysis	3	Chem. 146, 147—Chemistry of foods	5
Chem. 10—Mathematical chemistry	3	Elective	3
Electives	2		
	17		17

SENIOR YEAR

Chem. 100—Thesis	3	Chem. 100—Thesis	3
Chem. 130, 131—Physical chemistry	5	Chem. 130, 131—Physical chemistry	5
Agr. Bact. 125—Food bacteriology	3	Chem. 113—Water analysis	1
Electives	5	Electives	6
	16		15

Of the 16 elective credits, at least 8 must be taken in subjects other than chemistry.

VII. COURSE IN HUMANITIES

COMMITTEE IN CHARGE: PROFESSOR R. L. REYNOLDS (*Chairman*), BRUNS, ROGERS (*Secretary*), C. W. THOMAS, VIVAS, N. F. HALL, WINSPEAR

PURPOSE AND PLAN. This course was instituted in order to give students substantial introductions to the four great fields of learning: language and literature; history and its correlated branches; science; philosophy and mathematics. They will come into vital contact with at least one of the great civilizations of the ancient world. They will acquire the power to acquaint themselves with at least one of the great foreign civilizations of the modern world. They will have training in English composition and spend at least a year with the masters of English literature. They will be given the opportunity in courses in history, economics, and political science to gain knowledge regarding the institutions of the past and of the present, and to study methods of analyzing social facts. An introduction to one of the sciences will open to them the world of natural phenomena, and bring to them some experience in

scientific method. Courses in philosophy and mathematics will serve to induce in them habits of close reasoning.

It is believed that students who seek what is called a "general education" will see the desirability of the initiation into these four fields which is required in this course. It is believed, also, that students who feel the need of passing quickly to a special subject with the intention of concentrating their attention upon it will consider that the delay entailed by the satisfaction of the requirements in the course will be justified by the enlarged vision with which it will insure their entering upon their specialized work.

REQUIREMENTS. The general requirements of this course are identical with those of the B.A. General Course, and the regulations pertaining thereto also govern students in this course, excepting as modified by the following special requirements and rules. (See pages 43-60). The major must be chosen from the fields of language, literature, natural science, economics, history, political science, mathematics, or philosophy. Professional subjects, excepting such as may be required for the teachers' certificate, are not open for election by students in this course. Some member of the committee in charge will be assigned as the student's adviser and will inform him whether or not any given subject is professional. Upon successful completion of the requirements outlined below, including 120 academic credits and at least an equal number of grade-points, the student will be admitted to the degree of Bachelor of Arts (Humanities).

(a) 12 credits in English composition and literature;

(b) Three of the following four options in foreign language and literature:

(1) 24 credits in Latin; (2) 14 credits in Greek; (3) reading knowledge of French; (4) reading knowledge of German. The credits in Latin and Greek may be absolved by combining high-school units and college credits as described in section 21c, p. 61; the reading knowledge of French and German must be demonstrated to the satisfaction of the committee in charge of Humanities.

(c) 10 credits in the fields of economics, history, and political science, of which at least 6 credits will be in history;

(d) 10 credits in natural science;

(e) 12 credits in the fields of mathematics and philosophy. Elections in philosophy shall be made after consultation with Professor Vivas or with the Chairman of the Course in Humanities.

Students in the Course in Humanities may become candidates for the teachers' certificate without entering the School of Education by registering in both the School of Education and the College of Letters and Science during their junior and senior years.

COURSE IN HUMANITIES

LEADING TO THE DEGREE OF BACHELOR OF ARTS (HUMANITIES)

RECOMMENDED SEQUENCE

FRESHMAN YEAR

First Semester	Credits	Second Semester	Credits
Engl. 1a—Freshman composition	3	Engl. 1b—Freshman composition	3
Hist. 1—Medieval history	3 or 4	Hist. 1—Medieval history	3 or 4
Foreign language	3-5	Foreign language	3-5
Mathematics or foreign language	3-4	Mathematics or foreign language	3-4
Physical activity requirement	0-(1)	Physical activity requirement	0-(1)
	14-16		14-16

SOPHOMORE YEAR

Engl. 30a, 32a, 33a, or 40a	3	Engl. 30b, 32b, 33b or 40b	3
Foreign language	3-5	Foreign language	3-5
Science	5	Science	5
Required subject (see list below)	3-4	Required subject (see list below)	3-4
	14-17		14-17

SUBJECTS RECOMMENDED FOR SOPHOMORE YEAR IN FULFILLMENT OF REQUIREMENTS

Econ. 1a—General economics	4	Econ. 1b—General economics	4
Pol. Sci. 1 or 7—Introduction to government and politics	3	Philosophy 11, 21, 132, or 145	3
Philosophy 11, 21, 31, or 41	3	Pol. Sci. 1 or 7—Introduction to government and politics	3
Math. 5a—Differential calculus	3	Math. 5b—Integral calculus	3

COURSE IN CLASSICAL HUMANITIES

A special Course in Classical Humanities has been established for students of excellent scholarship who present four units of high-school Latin for entrance to the University. For the most part the requirements are those of the General Course in Humanities. This course is designed to give the student a thorough and integrated knowledge of Greco-Roman civilization by means of a study of the language and literature, history and institutions, economics, religion, art and philosophy of these two peoples. Those interested in the course may apply to Professor A. D. Winspear for more detailed information.

VIII. SCHOOL OF PHARMACY

ARTHUR H. UHL, DIRECTOR, ASSOCIATE PROFESSOR OF PHARMACEUTICAL CHEMISTRY

The Course in Pharmacy is designed to provide a broad foundation in pharmacy and the related sciences. Its purpose is to furnish a scientific foundation for the pursuit of the profession of pharmacy in all its branches, to prepare students not only to operate drug stores but to fit them as well for other lines of pharmaceutical activity,—to enter hospital practice, to take up pharmaceutical manufacturing, to engage in pharmaceutical research and the teaching of pharmaceutical subjects, or to enter the government service.

The University maintains completely equipped laboratories for the work of the department, including a dispensary, the Frederick B. Power Pharmaceutical Library, the drug cabinet, and a milling room.

The professional courses in pharmacy are not open to election for credit by non-pharmacy students without the written permission, obtained in advance, of the dean of the college concerned.

REQUIREMENTS FOR GRADUATION. The Course in Pharmacy requires 128 credits, including a thesis, for graduation. The first two years are devoted almost exclusively to the study of languages and the fundamental sciences. Year courses in English, biology, chemistry, and physics are required. All the strictly pharmaceutical subjects, with the exception of an orientation course in the first year and an elementary course in pharmaceutical chemistry in the second, are given in the last two years of the course. These include pharmaceutical and plant chemistry, pharmacognosy, and pharmacy.

Students may satisfy the foreign-language requirement by offering two years of German and one year of French, or, at their option, the following: (a) a knowledge of elementary Latin, obtained by the satisfactory completion of either of two years of this language in high school or one year in college, and (b) a reading knowledge of either French or German, as evidenced by the completion of the fourth semester of one of these languages at the University of Wisconsin with a grade of C or

better, by passing the intermediate examination, or by a certificate of reading knowledge from the appropriate department of this University.

Of the four years' work required for graduation, three must be in a recognized course in pharmacy, of which at least the last year must be taken in residence at the University of Wisconsin.

ADVANCED WORK. Like the sister profession, medicine, pharmacy is in need not only of the general practitioner, but also of the specialist. Graduates who wish to prepare themselves as analytical, food, or sanitary chemists in manufacturing concerns will find that the department offers excellent opportunities for specialized study and research. Extensive research facilities are provided, and the graduate courses in pharmacy, pharmaceutical and plant chemistry, and pharmacognosy make up an important part of the offerings of the department. Pharmaceutical alumni and other friends of the University have assured a permanent and ever-increasing endowment for pharmaceutical research at Wisconsin through the establishment (initial gifts were presented in 1917) of a research fund.

COURSE IN PHARMACY

LEADING TO THE DEGREE OF BACHELOR OF SCIENCE (PHARMACY)

RECOMMENDED SEQUENCE

FRESHMAN YEAR

First Semester	Credits	Second Semester	Credits
Engl. 1a—Freshman composition	3	Engl. 1b—Freshman composition	3
Foreign language	4	Foreign language	4
Chem. 1a—General chemistry	5	Chem. 1b—General chemistry	5
Pharm. 1—Orientation in pharmacy	3-4	Pharm. 1—Orientation in pharmacy	3-4
Physical activity requirement	0-(1)	Physical activity requirement	0-(1)
	15-17		15-17

SOPHOMORE YEAR

Pharm. Chem. 24—Organic chemistry	2	Pharm. Chem. 24—Organic chemistry	2
Botany 1—General botany	5	Zoology 1—Animal biology	5
Physics 1 or 31—General physics	5	Physics 1 or 31—General physics	5
Foreign language or electives	3-5	Foreign language or electives	3-5
	15-17		15-17

JUNIOR YEAR

Pharm. 20—Elementary prescription practice	2	Pharm. 20—Elementary prescription practice	2
Pharm. 50—History of pharmacy	1	Pharm. 50—History of pharmacy	1
Pharm. Chem. 126—Inorganic pharmaceutical chemistry	3	Pharm. Chem. 127—Organic pharmaceutical chemistry	3
Pharm. Chem. 145—Pharmacopoeial assaying	2	Pharm. Chem. 145—Pharmacopoeial assaying	2
Pharmacog. 10—Vegetable and animal drugs	1	Pharmacog. 10—Vegetable and animal drugs	1
Botany 110—Plant histology	3	Botany 111—Microscopical examination of food and drugs	3
Foreign language or electives	3-5	Foreign language or electives	3-5
	15-17		15-17

SENIOR YEAR

Pharm 51—Drug store practice	1	**Pharm. 51—Drug** store practice	1
Pharm. 100—Thesis	2	Pharm. 100—Thesis	2
Pharm. 121—Advanced prescription practice	2	Pharm. 121—Advanced prescription practice	2
Pharm. 128—Pharmaceutical technology	2	Pharm. 128—Pharmaceutical technology	2
Pharmacog. 120—Natural history of vegetable and animal drugs	3	Pharmacog. 120—Natural history of vegetable and animal drugs	3
Pharm. Chem. 140—Plant chemistry	3	Pharm. Chem. 140—Plant chemistry	3
Electives	3-4	Electives	3-4
	16-17		16-17

IX. PREMEDICAL COURSE

MEDICAL SCIENCE. A major in Medical Science is provided for students in the General Courses who pursue the regular three-year premedical sequence and meet both their premedical and special degree requirements. In their senior year such students register in the Medical School as well as in the College of Letters and Science. The work of the major consists of a minimum of 25 credits in closely related medical subjects, and according to the degree requirements selected they may qualify for the B.A. or the B.S. degree. Such students must earn at least 90 credits in Letters and Science and meet all the regular premedical requirements (8-10 credits each in general chemistry, biology, and physics, at least 4 credits [a full year for the B.S. sequence] in organic chemistry, one year of college Latin or its high-school equivalent, and a reading knowledge of French or German established by credits or examination taken at the University of Wisconsin) during the first three years.

The candidates for the B.A. degree must satisfy the regular requirements in foreign language, English, and history or mathematics as specified for the B.A. degree in the General Course.

The candidates for the B.S. degree must complete a year of freshman English, a year of elementary or more advanced mathematics in college, Zoology 105, and one year of organic chemistry.

Dr. W. J. Meek, Assistant Dean of the Medical School is the adviser for all premedical students.

PREMEDICAL CURRICULA

LEADING EVENTUALLY TO THE DEGREE OF BACHELOR OF ARTS

RECOMMENDED SEQUENCE FOR THE THREE-YEAR COURSE

FRESHMAN YEAR

First Semester	Credits	Second Semester	Credits
Engl. 1a—Freshman English	3	Engl. 1b—Freshman English	3
Chem. 1a—General chemistry	5	Chem. 1b—Qualitative analysis	5
French 1a or German 1a	4	French 1b or German 1b	4
History or mathematics	3-4	History or mathematics	3-4
Physical activity requirement	0-(1)	Physical activity requirement	0-(1)
	15-16		15-16

SOPHOMORE YEAR

English 30a, 32a, 33a, or 40a	3	English 30b, 32b, 33b, or 40b	3
Chem. 120a, 121a—Organic chemistry	4-5	Zoology 104	5
Zoology 1—Animal biology	5	French 10b or German 2b	3
French 10a or German 2a	3	Elective	5
	15-16		16

JUNIOR YEAR

Physics 1a or 31	5	Physics 1b or 31	5
Foreign language	4-5	Latin 1b—Caesar	4
Latin 1a—Elementary Latin	4	Foreign language	4-5
Electives if foreign language and Latin were pursued in high school	11	Electives if foreign language and Latin were pursued in high school	11
	14-15		14-15

PREMEDICAL CURRICULA

LEADING EVENTUALLY TO THE DEGREE OF BACHELOR OF SCIENCE (MEDICAL SCIENCE)

RECOMMENDED SEQUENCE FOR THE THREE-YEAR COURSE

FRESHMAN YEAR

First Semester	Credits	Second Semester	Credits
Engl. 1a—Freshman English	3	Engl. 1b—Freshman English	3
Chemistry 1a—General chemistry	5	Chemistry 1b—General chemistry	5
Mathematics	4	Mathematics	4
French 1a or German 1a	4	French 1b or German 1b	4
Physical activity requirement	0-(1)	Physical activity requirement	0-(1)
	16		16

SOPHOMORE YEAR

Chemistry 120a, 121a	4	Chemistry 120b, 121b	4
Zoology 1—Animal biology	5	Zoology 104—Comparative anatomy	5
French 10a or German 2a	3	French 10b or German 2b	3
Free electives	3	Free electives	3
	15		15

JUNIOR YEAR

Physics 1a or 31	5	Physics 1b or 31	5
Zoology 105—Embryology	5	Latin 1b	4
Latin 1a	4	Free electives if Latin has been pursued in high school	11
Free electives if Latin has been pursued in high school	6		
	15		15

SCHOOL OF COMMERCE

FAYETTE HERBERT ELWELL, DIRECTOR, PROFESSOR OF ACCOUNTING

The School of Commerce, organized in 1900, offers a three-year curriculum including junior, senior and graduate years. The course for undergraduates leads either to the degree of Bachelor of Arts or Bachelor of Philosophy, depending upon which course requirements are met.

REQUIREMENTS FOR ADMISSION. To be eligible for admission to the School of Commerce, students must (1) have been regularly promoted to the Junior Year in either of the general courses (B.A. or Ph.B., see section 8, page 47) and (2) have a grade-point average of 1.3 or better for their work in the College of Letters and Science, this work to include Economics 1a and Commerce 8 and 9. Students not presenting Economics 1a and Commerce 8 and 9 may be admitted, at the discretion of the Director of the School, on probation. To avoid delay in the progress of the student, the work of the first two years should include Economics 1a, Mathematics 7 and Commerce 8 and 9, all of which are required for graduation. Students are advised to take Geography 5 and 6, but they should *note* that these courses count only as general electives, not toward absolving the natural science option. Students are also urged to elect Commerce 43 and at least one course in speech.

RECOMMENDED PRE-COMMERCE SEQUENCES. The following arrangement of studies is recommended for the first two years to meet the requirements for admission to the School of Commerce:

FRESHMAN YEAR

	Ph. B. Degree (without foreign language)	B.A. Degree (with foreign language)
English composition (Engl. 1a-1b)	6 cr.	6 cr.
Mathematics, including course 7	8	8
History	6	6 or 0
Natural science	0-10	0 or 10
Foreign language	----	8–6
Physical activity requirement	0–2	0–2
	30–32	28–32

SOPHOMORE YEAR

General economics (Econ. 1a)	4	4
Accounting (Com. 8-9)	7	7
English literature (Engl. 30, 32, 33, or 40)	----	6
Foreign language	----	6–8
Electives	4	11–0
History	4	----
Science or mathematics (to complete 20 cr.)	2	----
English—intermediate composition (Engl. 2a)	3	----
Philosophy and (or) psychology	6–8	----
	30–32	28–32

REQUIREMENTS FOR THE BACHELOR'S DEGREE

I. General Course

1. A total of not less than 128 credits and 128 grade-points are required for the bachelor's degree and a total of not less than 130 credits and 130 grade-points for the University Teachers' Certificate. Juniors and seniors may take 17 credits per semester, or 18 in case none of their grades during the preceding semester was below B.

2. Completion of the general requirements in foreign language, science, history, mathematics, philosophy, psychology, etc., for either a B.A. or a Ph.B. degree in the General Course of the College of Letters and Science. These requirements should be met as far as possible during the freshman and sophomore years. See pages 60-64.

3. Completion of Mathematics 7, 4 cr. and the following courses in Commerce and Economics. With the exception of Commerce 109, these courses should preferably be completed by the close of the junior year:

	Credits
Commerce 6—English in business	3
Commerce 8-9—Accounting (sophomore year)	7
Commerce 13—Marketing methods	3
Commerce 31—Business statistics	3
Commerce 105—Money and banking	3
Commerce 109—Legal aspects of business relations (senior year)	3
Commerce 142—Public utilities	3
Economics 1a—General economics (sophomore year)	4
Free electives in Commerce and Economics	12
	41

4. Completion of not less than 41 nor more than 61 credits in the fields of commerce and economics; at least as many grade-points as credits must be earned in this group. A maximum of ten credits beyond the 41 specified above within the Departments of Commerce and Economics and a maximum of ten additional credits in other departments of the University may be prescribed by the professor in charge of the student's special field of interest. The intent of this rule is to restrict to 61 credits the total requirement which may be placed upon the student by the School of Commerce and the professor in charge.

Students whose grade-points in commerce and economics do not exceed their credits by at least fifty per cent by the beginning of their senior year are required to diversify the work of the major and may not offer more than three courses (excluding the above required basic courses) from any one of the fields described below for upper-group students.

Students whose grade-points in commerce and economics exceed their credits by at least fifty per cent by the beginning of the senior year are required to concentrate in a selected field. Their electives must include at least twelve credits in one of the following fields:

I. Accounting

Accounting majors must take courses 181, 182, 183, 184, 186, 187. These courses should be elected in the following sequence:
181 and 182 in the junior year; 183 and 187 in the first semester of the senior year; 184 and 186 in the second semester of the senior year.

	Credits
Com. 181—Advanced accounting problems	3
Com. 182—Cost accounting	2
Com. 183—Accounts of consolidations and income taxes	2
Com. 184—Auditing	3
Com. 185—Analysis of financial reports	2
Com. 186—Accounting systems	2
Com. 187—Governmental accounting	2
Com. 188—Budgets and budgetary control	2
Com. 199—Public utility and institutional accounting	2

II. Banking and Finance

	Credits
Com. 110—Investments	3
Com. 133—Financial history of the U. S.	3
Com. 137—Corporation finance	3
Com. 151—Latin America: economic development and trade	3
Com. 154—Risk and profit	3
Com. 158—Large scale enterprise	3
Com. 191—Credit system	3
Econ. 103—Fiscal policies	3
Econ. 124—Taxation	3
Econ. 175—Business cycle theories	3

III. Marketing

Com. 15—Principles of advertising	2
Com. 113—Problems in market analysis	3
Com. 114—Marketing management	3
Com. 116—Problems in national advertising	3
Com. 151—Latin America: economic development and trade	3
Com. 156—International trade	3
Com. 170—Merchandising	3
Com. 198—Modern problems in distribution and public relations	3
Agr. Econ. 127—Cooperative marketing	3
Agr. Econ. 128—Marketing agricultural products	3

IV. Public Utilities

Com. 135—Railway transportation	2-3
Com. 136—Transportation problems	3
Com. 168—Highway transportation	3
Com. 189—Railway rates and traffic	2-3
Com. 195—Public utility management	3
Com. 266—Seminary, public utilities (open to seniors by special consent)	2

V. Risk and Insurance

Com. 110—Investments	3
Com. 121—Fire and casualty insurance	3
Com. 133—Financial history of the U. S.	3
Com. 138—Life insurance	3
Com. 140—Problems in life insurance	2
Com. 154—Risk and profit	3
Com. 160—Problems in property insurance	2
Math. 24—Theory of life insurance	3

Majors must take Com. 139, Principles of insurance and Com. 137, Corporation finance, in addition to the 12 credits selected from the above.

Those interested in actuarial work are recommended to take in addition to the above sequence, the following courses in Mathematics: 5a, 5b, 101, 112, 118, and 137.

VI. Statistics

Com. 132—Statistical analysis of business cycles	3
Com. 196—Advanced statistical technique	3
Com. 230—Seminary, statistical research (open to seniors by special consent)	2
Econ. 131—Wages and prices	3
Mathematics: Not to exceed 10 credits selected from the following courses:	
Math. 101a or 103a—Calculus	3-4
Math. 101b or 103b—Calculus	3-4
Math. 118—Probability and statistics	3
Math. 137—Advanced probability and statistics	3

VII. Commercial Teaching

The ordinary requirements of the major (depending upon the point-credit ratio in commerce and economics) and, in addition the courses in the School of Education required of all candidates for the University Teachers' Certificate, including Educational Methods 75. At least eight credits must be selected from the preceding six fields.

II. Courses in Municipal Finance and Administration

1. Completion of the work outlined in paragraphs 1 and 2 under Requirements for the Bachelor's Degree, I, General Course above and completion of the following courses preferably by the close of the junior year:

	Credits
Commerce 6—English in business	3
Commerce 8-9—Accounting (sophomore year)	7
Commerce 31—Business statistics	3
Commerce 105—Money and banking	3
Commerce 142—Public utilities	3
Economics 1a—General economics (sophomore year)	4
Political Science 7—American government and politics	3
Political Science 13—Municipal government	3
Free electives in Commerce and Economics	9
	38

Law—Municipal corporations (senior year)	2
Mathematics 7—Theory of investment (freshman year)	4
	44

2. Completion of a major by upper-group students as stated above. This major shall include 12 credits selected from the following:

	Credits
Commerce 137—Corporation finance	3
Commerce 187—Governmental accounting (This course for majors in this group is given for three credits)	3
Economics 124—Taxation	3
Political Science 135—Municipal administration	3
Political Science 143—Introduction to public administration	3

Suggested courses for other electives are:

	Credits
Commerce 110—Investments	3
Commerce 184—Auditing	3
Commerce 195—Public utility management	3
Economics 103—Fiscal policies	3
Economics 146—Government and business	3
Education 171—School finance	3

PUBLIC SERVICE. The courses offered by the School of Commerce and other university departments serve as excellent preparation for those desiring to take examinations to enter certain fields of municipal, state and federal service. Inquiries regarding the academic training helpful in preparing for a particular departmental service or field of public administration related to the subjects taught in the School of Commerce may be addressed to the Director.

TRANSFERRED STUDENTS

Students with advanced standing from other institutions and transfers from other courses in the University must meet all the requirements of this School. Substantial equivalents will be accepted for required courses, but no requirements will be waived. Courses in business subjects such as accounting, business administration, advertising, business law, etc., pursued in other institutions in the freshman year will not be accepted as equivalents of the courses offered here in these subjects. Only in exceptional cases will courses in these subjects pursued elsewhere in the sophomore year be accepted in satisfaction of the requirements.

Programs which do not comply with the regulations herein described will be allowed only in the cases of students who are not candidates for a degree, who have had here or elsewhere a course equivalent to two years in the College of Letters and Science of this University, and who have had the prerequisites of the particular subjects they wish to pursue. Until such students have demonstrated their ability to maintain a grade of at least C in the courses to which they are admitted, their status will be that of students on probation.

THE GRADUATE YEAR

The University offers through its Graduate School and School of Commerce the degrees of Master of Arts (Commerce) and Master of Philosophy (Commerce). For details concerning the requirements for these degrees the student should consult the bulletin of the Graduate School.

COMMERCE STUDENT SOCIETIES

On the University campus there are a number of Commerce Student Societies, established for the purpose of promoting professional interest in business and for rewarding outstanding performance in scholarship and leadership. Among those active at present are Beta Gamma Sigma, Delta Sigma Pi, Alpha Kappa Psi, Beta Alpha Psi, Phi Chi Theta, and the Women's Commerce Club.

PLACEMENT BUREAU

The School of Commerce maintains a Placement Bureau to assist seniors in securing positions and to aid graduates in securing more satisfactory positions. Each year business organizations send their representatives to interview students who are seeking employment. The Placement Bureau welcomes these contacts with executives of business concerns who are interested in employing men and women of the School of Commerce.

SCHOOL OF JOURNALISM

GRANT M. HYDE, DIRECTOR, PROFESSOR OF JOURNALISM

PURPOSE AND PLAN. The University of Wisconsin was one of the first to give systematic instruction in journalism. The first journalism course at Wisconsin was offered in 1905; the four-year curriculum, "Courses Preparatory to Journalism," was set up in 1906; the four-year "Course in Journalism" was established in 1909; graduate work for the M.A. (Journalism) began in 1915; the present organization, "School of Journalism," was established in 1927. Wisconsin conforms with the standards of the American Association of Schools and Departments of Journalism, of which it was a charter member in 1916. The School maintains fully equipped laboratories for conducting its work, including the full teletype wire news service of one of the press associations for practice in editing telegraph copy, and a special department library (the Bleyer Memorial).

The School of Journalism provides for a continuous, correlated five-year course, including its supervised pre-journalism curriculum, undergraduate school, and post-graduate studies. While the two probationary pre-journalism years are devoted mainly to general college subjects, they include two journalism courses, affording a tryout before formal admission to the School at the beginning of the junior year without material loss of credit to students who transfer to other majors. The School confers the Bachelor of Arts (Journalism) at the completion of four college years and the Master of Arts (Journalism) at the completion of five college years. To provide further graduate study, the School offers a double minor in journalism for the Doctor of Philosophy in political science, economics, sociology, history, psychology, English, and education.

The curriculum of the School is divided into two fields: (1) General college subjects totalling 94 credits and including 29-45 credits in the social sciences to acquaint the student with present social, political, scientific, and economic conditions, as well as with the literature of his own and other languages. (2) Journalistic courses, totalling 30 credits, to give technical training in newspaper and magazine writing and editing, as well as advertising, and to correlate the academic subjects with the problems of journalism. Thus, during the four or five years, the student devotes three-fourths of his time to such studies as history, economics, political science, sociology, philosophy, natural science, language and literature—all fundamental to journalistic work.

The journalistic work includes courses in reporting, editing, headline writing, make-up, the writing of special articles, editorial writing, critical writing, women's fields in newspapers and magazines, the community newspaper, newspaper business problems, reporting of foreign news, journalistic style, news photography, radio news writing, interpreting Hispanic news, history of journalism, influence of the newspaper on public opinion, reporting of the law courts, law of the press, comparative journalism, both in the United States and in foreign countries. Courses are also offered in retail advertising, national advertising campaigns, business letter writing, and marketing methods. Foreign newspapers are studied in special courses given by the Departments of French, Spanish, German, and Italian.

See page 146 for list of courses. Additional information is available in a special bulletin of the School of Journalism, which may be had from the Director of the School.

ADVERTISING. Students may prepare for advertising positions by combining courses in journalism with those in advertising. The normal arrangement of these courses is indi-

cated in the Journalism-Advertising Group. Such students must earn even grade-points in Economics 1a and 1b, and usually must earn a B in Commerce 15.

TECHNICAL AND TRADE JOURNALISM. Although the curriculum in this School is primarily for students preparing for newspaper and magazine work, provision has also been made for those interested in technical and trade journalism. The courses in newspaper and magazine work may be elected by students in other colleges and schools. Subject to special provisions (see page 57), students in the School of Journalism may elect courses in the College of Engineering, the Law School, the School of Education, and the College of Agriculture including Home Economics. Thus by combining studies, students may prepare for practically all lines of technical and trade journalism. Journ. 105b and 117 are especially designed for such students.

COMMUNITY JOURNALISM. Because of the growing opportunities in community journalism, including the 11,000 country and suburban weekly newspapers and the 1,500 small city dailies, special training is outlined in the Community Newspaper Group.

TEACHER TRAINING. Through a cooperative arrangement with the School of Education, students who wish to prepare for the supervision of journalism classes, student publications, and public relations in high schools, may obtain the University Teachers' Certificate, along with the B.A. (Journalism). A minor in English is usually required.

PRACTICAL EXPERIENCE. Students preparing for journalism are given practical news assignments for the two Madison daily newspapers. The editors of a number of Wisconsin daily and weekly papers give students in Community Newspaper experience during the spring recess. Places on the editorial and business staffs of student publications are open to journalism students. The *Daily Cardinal,* published in a printing plant of its own, is edited by a staff organized from the students interested in journalism. The *Octopus,* a humorous periodical, and the *Badger,* the university annual, give a variety of experience in journalism. *The Wisconsin Engineer,* a monthly published by the students of the College of Engineering, and the *Wisconsin Country Magazine,* a monthly edited by the agricultural students, furnish practice in technical journalism. In all basic courses (Journ. 2, 3, 105, 111, 123) individual instruction is provided through weekly or bi-weekly group discussions of students around a table.

Journalism faculty members act as advisers of all freshmen and sophomores who inform the Registrar in advance that they plan to enter the School of Journalism, as well as of juniors and seniors in the School.

All students preparing for journalism are required to learn typewriting before or soon after entering the University. Shorthand is recommended, especially for women students.

The faculty of the School aids graduates in obtaining positions in newspaper, magazine, trade journal, and advertising work, as well as in school or college teaching.

ADMISSION REQUIREMENTS. For admission to this School, students must be eligible for junior standing in the College of Letters and Science, having completed the first two years of the B.A. General Course. A minimum of 58 credits is necessary for junior standing, but students are advised to present at least 60 credits for admission to the School if they expect to complete in two years of residence the 124 credits required for graduation. Credits that are lacking may be earned in summer session or by correspondence study.

Students entering the University as freshmen or sophomores must complete the studies required in the first two years of the B.A. General Course (see section 21) and are strongly advised to carry, during these two years, such courses, prerequisite to the advanced courses of the School of Journalism, as are open to freshmen and sophomores. As far as possible students should carry the following courses during the freshman and sophomore years, bearing in mind that, although history and science are recommended, mathematics may be substituted for either.

	Credits
Freshman English (English 1)	6
Foreign language, preferably French, German, Italian, or Spanish	6-14
Ancient, medieval, English, or modern history	6
Natural science	10
Mathematics	8
English (English 30, 32, 33, or 40)	6
General economics (Economics 1a and 1b)	8
Introduction to government and politics (Pol. Sci. 1 or 7)	3
Introductory psychology (Psychology 1)	3
General survey of journalism (Journalism 1)	2
Newspaper reporting (Journalism 2)	6

Students must obtain nine grade-points in English 1a and 1b to be admitted to Journalism 2. Only those students who obtain nine grade-points in Journalism 2 will be admitted to the School of Journalism.

Students who have completed two or more years in another institution (college, university, or normal school), must be eligible for junior standing in the B.A. General Course of the College of Letters and Science, in order to be admitted to the School of Journalism. To complete the requirements for graduation from the School of Journalism in two years, they should present most of the subjects listed above for the first two years at the University (excepting the credits in journalism). Students from other institutions should send a certified copy of their preparatory school and academic records to the chairman of the Committee on Advanced Standing, Bascom Hall, before coming to the University.

Requirements for Graduation. For graduation from the School of Journalism, 124 credits are required. Of this total 30 credits must be taken in required and elective courses in journalism, including Commerce 15, but not Journalism 1. Students in the Journalism-Advertising group may include Commerce 13 and 116 in the 30 credits. In addition, Economics 1a and 1b, Pol. Science 1 or 7, Psychology 1, and 15 credits in advanced social sciences are required as noted on page 81.

The student's point-credit ratio in courses in journalism and advertising must not be less than 1.5, and in other courses not less than 1.0. Those students in the School of Journalism who fail to maintain the grade-point requirements will be advised to withdraw from the School.

Students are required to have either (1) 32 credits in two or more foreign languages, or 27 credits in one, part of which may have been taken in preparatory schools (each year of foreign language work in a high school or academy is counted as four credits up to a maximum of 24 toward the required 32 credits) or (2) they must demonstrate by examination either (a) proficiency in one foreign language or (b) a reading knowledge in two foreign languages. (See page 61.) For journalism students the languages which may be offered include Latin, Greek, French, Italian, Spanish, Portuguese, and German (other foreign languages only by permission of the Director).

Upper-group seniors in the School of Journalism (those who have a point-credit ratio of not less than 1.5 for the first three years) have the privilege of writing a thesis (4 credits) presenting the results of a year's research in either contemporary or historical phases of newspapers, magazines, or advertising. Such theses are bound and filed in the School Library.

The other required courses for graduation from the School of Journalism and the number of credits to be earned in each are as follows:

I. REQUIRED COURSES IN JOURNALISM AND ADVERTISING

Course No.	Title of Course	Yr. and Sem.	OPTIONAL GROUPS				
			Daily Newspaper	Community Newspaper	Journalism-Advertising	Journalism-Magazine	Teachers
2	Newspaper reporting	2 or 3	6 cr.	6 cr.	3 cr.	6 cr.	6 cr.
3	Newspaper desk work	3	6	6	3	6	6
4	Advertising typography	3-II			1		
13	Marketing methods	3-I			3		
15	Advertising principles	3-I	2	2	2	2	2
101	Journalistic style	4-I				2	2
104	Editorial writing	4-I	2	2			
105	Wrting of special articles	3-I	3	3		3	3
106	Critical writing	4-II				2	2
107	Community newspaper	3-I		3			
108	Newspaper business management	3-II		3			
109	Law of the press	4-I	1	1	1	1	1
110	History of journalism	4-I	3	3	3	3	3
111	Press and public opinion	4-II	3	3	3	3	3
112	Reporting of law courts	4-II	2**	2**			
116	National advertising	4-I			3		
117	Technical and trade journalism	3-II				2	
120	Interpreting foreign news	4-II	2				
123	Women's fields	3-II	3*			3*	
191	Teaching of journalism	SS					2
	Total credits		30 cr.	30 cr.	30 cr.	30 cr.	30

*Required of women students only. **Required of men students only.

II. REQUIRED COURSES IN THE SOCIAL SCIENCES

In addition to the introductory courses in the social sciences required in the freshman and sophomore years (Psych. 1, Pol. Science 1 or 7, and Economics 1a and 1b), at least fifteen credits must be chosen from not less than three of the following groups:

1. History

Credits

At least 3 credits in courses numbered over 100, preferably:

111—History of the West, 1763-1893 ---------- 3-4
117—American constitutional history, 1600-1939 ---------- 2-3
120—American foreign relations, 1783-1939 -- 3
122—American economic life ---------- 2-3
124—Recent history of the United States, 1873-1939 ---------- 3-4
139—Europe since 1815 ---------- 3
143—The British Empire since 1815 ---------- 3
147—Modern Britain, 1760-1939 ---------- 3
178—Recent German history ---------- 2-3

2. Political Science

At least 3 credits in courses numbered over 100, preferably chosen from the following:

122—Political parties and public opinion ----- 3
127—Comparative government ---------- 3
128—Comparative government: contemporary dictatorships ---------- 3
131—The United States and Latin America -- 3
134—County and township government in the United States ---------- 2
135—Municipal administration ---------- 3
137—International organization and League of Nations ---------- 3
139—State government ---------- 2
140—Far Eastern politics ---------- 3
144—Police power and social legislation ------ 3
165—History of American political ideas ---- 3
166—Contemporary American political thought ---------- 3

3. Economics and Commerce

At least 3 credits in advanced courses preferably chosen from the following:

Com. 43—Business ethics ---------- 2
Econ. 119—Evolution of industry ---------- 3
Econ. 122—Labor problems ---------- 3
Econ. 124—Taxation ---------- 3
Econ. 136—Transportation problems -------- 3
Econ. 142—Public utilities ---------- 3
Econ. 144—Capitalism and socialism -------- 3
Econ. 145—American labor history ---------- 3
Econ. 146—Government and business -------- 3
Econ. 156—International trade ---------- 3

4. Sociology

At least 3 credits, preferably chosen from the following:	Credits
1, 2—Introductory sociology	6
46—Introduction to anthropology	3
132—Introductory social statistics	3
138—Introduction to social pathology	3
139—Social psychology	3
140—Principles of sociology	3
144—Contemporary social movements	3
161—Criminology and penology	3
165—Scientific identification of criminals	2
197—Personality and social adjustment	3

5. Psychology and Philosophy

At least 3 credits, preferably chosen from the following:	Credits
Psych. 50—Applied psychology	2
Psych. 106—Abnormal psychology	3
Psych. 108—Human emotions and motivation	3
Psych. 144—Psychology of learning	3
Phil. 11—Elementary logic	3
Phil. 21—Introduction to philosophy	3
Phil. 25—Philosophy and the human enterprise	3
Phil. 41—Introductory ethics	3

RECOMMENDED PRE-JOURNALISM CURRICULUM

FRESHMAN YEAR

First Semester	Credits	Second Semester	Credits
Journ. 1—General survey	1	Journ. 1—General survey	1
Engl. 1a—Freshman English	3	Engl. 1b—Freshman English	3
Foreign language (one or two)	3-8	Foreign language (one or two)	3-8
History 1, 2, 5 or 10	3	History 1, 2, 5 or 10	3
Science	5-6	Science	5-6
Physical activity requirement	0-(1)	Physical activity requirement	0-(1)
	15-16		15-16

SOPHOMORE YEAR

Journ. 2—Newspaper reporting	3	Journ. 2—Newspaper reporting	3
English 30a, 31a, 33a, or 40a	3	English 30b, 31b, 33b, or 40b	3
Foreign language	2-3	Foreign language	2-3
or		or	
Hist. 2 or 4	(3)	Hist. 2 or 4	(3)
Pol. Sci. 7—Introduction to government and politics	3	Psych. 1—Introductory psychology	3
Econ. 1a—General economics	4	Econ. 1b—General economics	4
	15-16		15-16

SCHOOL OF JOURNALISM CURRICULUM

LEADING TO THE DEGREE OF BACHELOR OF ARTS (JOURNALISM)

DAILY NEWSPAPER GROUP

JUNIOR YEAR

First Semester	Credits	Second Semester	Credits
Journ. 3—Desk work	3	Journ. 3—Desk work	3
Journ. 105a—Writing of special articles	3	Journ. 106—Critical writing	2
Commerce 15—Advertising principles	2	Journ. 108—Business course	3
Social science options	3-6	Journ. 105b—Magazine articles	2
Free electives	5-2	Social science options	6-8
		Free electives	5-3

SENIOR YEAR

Journ. 104—Editorial writing	2	Journ. 111—Press and pub. opinion	3
Journ. 109—Law of the press	1	Journ. 112—Reporting of law courts	2
Journ. 101—Journalistic style	2	Journ. 120—Interpreting foreign news	2
Journ. 110—History of journalism	3	Journ. 123—Women's fields	3
Social science options	3-6	Social science options	2-6
Free electives	5-2	Free electives	7-3

COMMUNITY NEWSPAPER GROUP

JUNIOR YEAR

Journ. 3—Desk work	3	Journ. 3—Desk work	3
Journ. 105a—Writing special articles	3	Journ. 108—Business course	3
Journ. 107—Community newspaper	3	Commerce 13—Marketing methods	3
Commerce 15—Advertising principles	2	Social science options	6-8
Econ. 25—Rural life	(3)	Free electives	4-2
Social science option	3		
Free electives	3		

SENIOR YEAR

Journ. 109—Law of the press	1	Journ. 111—Press and pub. opinion	3
Journ. 110—History of journalism	3	Journ. 112—Reporting of public affairs	2
Journ. 104—Editorial writing	3	Econ. 127 or 192	(2)
Social science options	3-6	Social science options, or	6-8
Free electives	7-3	Free electives	3-1

JOURNALISM-ADVERTISING GROUP

JUNIOR YEAR

Journ. 3—Desk work	3	Journ. 4—Advertising typography	1
Journ. 105a—Writing of special articles	3	Journ. 117—Trade journalism	2
Commerce 15—Advertising principles	2	Commerce 13—Marketing methods	3
Social science option	3	Social science options	3-8
Free electives	5	Free electives	10-5

SENIOR YEAR

Journ. 109—Law of the press	1	Journ. 111—Press and pub. opinion	3
Journ. 110—History of journalism	3	Journ. 123—Women's fields	3
Commerce 116—National advertising	3	Commerce 170	3
Social science options	3-6	Social science options	6-8
Free electives	5-2	Free electives	5-2

JOURNALISM-MAGAZINE GROUP

JUNIOR YEAR

First Semester	Credits	Second Semester	Credits
Journ. 3—Desk work	3	Journ. 3—Desk work	3
Journ. 105a—Writing of special articles	3	Journ. 105b—Magazine feature articles	3
Commerce 15—Advertising principles	2	Journ. 117—Trade journalism	2
Social science options	3-6	Social science options	5-8
Free electives	6-3	Free electives	4-3

SENIOR YEAR

Journ. 109—Law of the press	1	Journ. 10—News photography	1
Journ. 110—History of journalism	3	Journ. 106—Critical writing	2
Journ. 101—Journalistic style	2	Journ. 111—Press and pub. opinion	3
Social science options	3-6	Journ. 123—Women's fields	3
Free electives	7-4	Social science options	4-6
		Free electives	7-5

TEACHERS' GROUP

Candidates for the University Teachers' Certificate are required to register in the School of Education as well as in the School of Journalism at the beginning of the junior year. They should take one Minor in English and may substitute a second Minor in one social science in place of the required 15 credits of advanced social science. (See page 64).

JUNIOR YEAR

Journ. 3—Desk work	3	Journ. 3—Desk work	3
Journ. 105a—Writing of special articles	3	Journ. 117—Trade journalism	2
Commerce 15—Advertising principles	2	Education 74	3
Social science options	3	Social science options	6-9
Education 73	3	Free electives	4-2

SENIOR YEAR

*Educ. Methods 191—Teaching of journalism	(2)	Journ. 106—Critical writing	2
Journ. 101—Journalistic style	2	Journ. 111—Press and pub. opinion	3
Journ. 109—Law of the press	1	Journ. 104—Editorial writing	2
Journ. 110—History of journalism	3	Education 76	5
Education 75	5	Education 84	2
Social science options	4	Social science option	2
Free electives	1		

*For the present the course in the methods of teaching journalistic writing and the supervision of student publications is given only in the Summer Session.

LIBRARY SCHOOL

GILBERT H. DOANE, DIRECTOR; GEORGE C. ALLEZ, ASSOCIATE DIRECTOR.

The Library School is a professional school offering a one-year course of training in library work to both men and women. This training is given in residence only, as an independent course to those who qualify for admission. Upon the successful completion of the full course of study, students will be awarded the degree of Bachelor of Library Science.

REQUIREMENTS FOR ADMISSION

1. Graduates of the College of Letters and Science or of an associated or accredited college with equivalent preparation, who have a grade-point average of at least 1.5 and who are able to meet the other requirements set forth below, are eligible for admission.

2. Each candidate will fill out an application blank, a copy of which can be obtained from the Director of the School. This application must be filed with the Director not later than the first of June for the ensuing academic year. Early application is advised, as the number of students that can be accepted is limited to forty and each application will be carefully scrutinized.

3. Applicants must be at least twenty years of age. Persons over thirty-five who have no professional experience are advised against undertaking the course.

4. The applicant must have a reading knowledge of either French or German. Other qualifications being equal preference will be given to those who present both languages.

5. A personal interview with the Director is desirable, since personal fitness for librarianship is essential to success in the field. Candidates are judged not only on their college records but also by the testimony of their references and of their own personality.

PREREQUISITES FOR ALL APPLICANTS. Practical work in an approved library, preferably in a public library, for a year or more before entering a library school is very desirable. This experience tests the candidate's aptitude for library work, gives a knowledge of library terms and familiarity with library processes. It makes a student more eager for, and appreciative of, what the library school has to offer. A month's preliminary work in an approved library under the supervision of a trained librarian is required of all accepted candidates who have not had accredited library experience. The library and the conditions under which the work is to be carried on must be satisfactory to the Director, and if desired, arrangements for it will be made by him.

Facility in the use of the typewriter is required in the School as it is in the modern library. There is not time to acquire skill and speed during a library school year and the school offers no instruction in typewriting. Each student is advised to own or rent a typewriter for his own use during the year.

In spite of the growing use of the typewriter, library hand is still in demand for various purposes. Prospective students are advised to acquire the vertical or library hand before matriculating. Sample alphabets will be furnished applicants.

It is desirable that every student should be reasonably familiar with the most notable literature in all of the principal departments of learning through actual reading of the books themselves. Further, a really intimate acquaintance with certain books is prerequisite. A copy of the required reading list accompanies the application blank which is sent to those making formal application for entrance. A discussion of these books forms the first appointment of the school year in book selection.

SUGGESTED PRELIMINARY PREPARATION. Undergraduates in college who are planning to enter the Library School on the completion of their college work are advised to select courses from the groups below.* Economics, History, English, and Science are especially suitable for majors. Two years of history, two of economics or political science, two of English, one of psychology, and one of science with its accompanying laboratory work are advised, also a reading knowledge of French and German.

Some studies that train in exactness, such as science, or foreign language, and others that give a broad culture should be the aim in preparing for librarianship, which calls for a liberal background. Therefore academic subjects should be emphasized. Preliminary courses in library science are not advised, except one teaching the use of the college library. A sufficient introduction to the learning represented by the groups below is essential to read intelligently in these subjects. Wide reading interests and the ability to assimilate information easily should be cultivated, also the habit of rapid reading.

General business knowledge is of great value to the prospective librarian and is a prerequisite to success in administrative library positions. Candidates who have not had business experience are urged to become familiar with business methods, including the handling of a bank account, the management of a personal budget, a knowledge of the elementary principles of bookkeeping, and a general understanding of ordinary business transactions.

STUDENT EXPENSE

Library School students are required to pay the regular university fees. A laboratory fee of $7.50 a semester is required and text books will average $40 for the full year. Upon notification that they have been accepted as students of the School, applicants are required to pay a registration fee of $5.00 which will be applied on the general fee of the first semester. In case of withdrawal of the applicant before the opening of the School, the registration fee will be retained to cover expenses already incurred.

The Alumni Association of the School is building a Loan Fund which is available for tuition loans to a limited number of students who may need to supplement their resources. Information regarding a loan may be had by addressing the Director. The Library School has no scholarships.

There is little opportunity for self-support while studying in the Library School, as the course is intensive, requiring *the entire time and energy of the student.* This should be understood and provision made in advance for the year's expenses, so that financial worry will not handicap the year's work.

APPOINTMENTS TO POSITIONS

While the School does not promise to place its graduates, it assumes the work of recommendation and placement through its correspondence with library authorities in the State and throughout the country, and is always glad to place graduates in suitable positions whenever possible.

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*English literature, especially survey courses in English and American literature, a period course, and others in literary appreciation and criticism. Courses dealing with such literary types as the novel, the drama, and the short story, not only in English but in foreign languages are desirable, also work in composition or rhetoric.

Modern languages. French and German are most needed in library work, and a reading knowledge of both is prerequisite for advanced positions. It is advisable to begin the preparation of at least one of the two languages named in high school, and to continue that language in college.

Classical languages. Four years of high-school Latin (with ancient history) are desirable.

History, including history of England and of the United States.

Social sciences. Economics, political science, and sociology.

Psychology, philosophy, and education.

Science, especially biology, botany, or zoology.

Speech.

History of art.

To hold a full time public library position in Wisconsin a certificate is required by state law. Graduation from the Library School meets one of the requirements for a first or second grade certificate namely "a one-year course in an accredited library school."

THE CURRICULUM

The curriculum, which extends throughout the university year, September to June, provides thirty-six weeks of resident study. It is divided into four main subjects of instruction: Administrative, bibliographical, technical and professional.

The following summary shows the individual Library Service courses which are required of all students.

First Semester	Credits	Second Semester	Credits
101—Library administration	3	102—Library administration	3
111—Reference and subject bibliography	3	112—Reference and subject bibliography	3
113—Book selection	3	114—Book selection	3
115—Children's reading	2	116—Library service to children and adolescents	2
121—Cataloging and classification	3	122—Cataloging and classification	3
131—History of books and libraries	1	132—The library as a social and educational institution	1

SUBJECTS OF INSTRUCTION

ADMINISTRATIVE

LIBRARY SERVICE 101—Library administration. Trade and national bibliography, the book trade, acquisition of books and other printed material, theories, principles and practices in the treatment of books from the time of purchase until discarded.

LIBRARY SERVICE 102—Library administration. Organization and operation of library service in small libraries, large libraries in the city with extension through branches and stations and concerning wider territory in county region and state. Administration of library service in college and university and in school libraries. Library legislation, trustees, librarian, staff, library property, budgets, and financial records, statistics, and the compilation and use of reports.

BIBLIOGRAPHIC

LIBRARY SERVICE 111 AND 112—Reference and subject bibliography. Critical evaluation of the standard works of reference in order to train the student to use and judge them for their reference and research value in the different types of libraries. A study of the bibliographies in subject fields in order to acquaint the student with their reference value. The study deals with the authority, date, scope, arrangement and usefulness in different types of libraries. Each student submits a selected and annotated bibliography that tests his ability to collect, arrange, and evaluate the literature of the subject chosen.

LIBRARY SERVICE 113 AND 114—Book selection. Chief factors in the building up a book collection related to the reading interests and needs of the clientelle of the library. The topics included are: Books and reading; reading process and reading interests; evaluation of books by classes and types; aids available to the librarian in forming judgments concerning books to be selected; and the librarian's collection in relation to the interests of the community.

LIBRARY SERVICE 115—Children's reading. A survey of children's books from the earliest chapbooks to the books of the present day. Methods and results of scientific investigations of children's reading; of children's reading interests; of the literature of the subject; and of the principles involved in the selection of children's books.

LIBRARY SERVICE 116—Library service to children and adolescents. Functions of public and school libraries as social and educational factors in the education of the young reader. The administration of the two types of libraries, the modification of the book collection to meet the needs of the reader and the objectives of the curriculum; story telling; and instruction in the use of books and libraries.

TECHNICAL

LIBRARY SERVICE 121—Cataloging and classification of books. An introduction to the principles of cataloging and classification, with practice in handling the simpler types of books. Rules of catalog entries, both author and subject. Training in the organization of a dictionary catalog and in the use of the unit card system. How to obtain and use printed catalog cards. The making of the shelf list. Detailed study of the Dewey Decimal classification system. Alphabeting; book numbers.

LIBRARY SERVICE 122—Cataloging and classification of books. Continuation of course 121. Additional topics include: Corporate entries. Serials. Analytics. Practice in the use of the Dewey Decimal system and the assignment of subject headings in connection with cataloging problems.

PROFESSIONAL

LIBRARY SERVICE 131—History of books and libraries. Lectures on the development of the form of the book, the history of printing and the allied arts of the book, and the history of libraries from the earliest times to the present day. The course is an attempt to familiarize the student in the history of books, and provide a foundation for further study.

LIBRARY SERVICE 132—The library as a social and educational institution. The history and nature of the development of libraries in the United States. Forces at work influencing social and cultural changes and the relation of the library to them. The philosophy of librarianship in terms of contemporary and potential trends in library service. Agencies and activities influencing library development.

SCHOOL OF MUSIC

CARL E. BRICKEN, DIRECTOR, PROFESSOR OF MUSIC

Courses in the School of Music, leading to the Bachelor of Music degree, are associated in three curriculums, one preparing the student for applied music teaching and performance, one for school music teaching, and the third for musical composition or the teaching of the materials and principles of musical composition. Students in all three categories pursue certain fundamental courses during the freshman and sophomore years, including Music 11, 20, and 21, courses in the fundamentals of musicianship, ear-training, dictation, sight singing, solfeggio, and strict counterpoint. All freshmen and sophomores are required to pursue the courses in applied music in one of the following instrumental or vocal sequences: 61 (pianoforte), 62 (voice), 63 (stringed or other orchestral instrument), or 64 (organ) in the first year, and correspondingly 71, 72, 73, or 74 in the second year. Music 51 is required of juniors or seniors majoring in School Music who have previously acquired only a slight proficiency on the pianoforte.

On the completion of the curriculum of the sophomore year, each student who has achieved a 1.6 grade-point ratio in his music courses will be given a comprehensive examination, covering the principles and materials of the work of the first two years. On the basis of this examination, the student will be advised as to his fitness to choose and continue in one of the three curriculums offered in the junior and senior years. Students who do not satisfy these requirements will be advised to withdraw or to transfer to another course.

Courses planned to meet the requirements for the University Teachers' Certificate are provided by the School of Education and are listed in the schedules of both Schools.

The degrees of Master of Arts and Master of Music are granted upon the completion of certain requirements. For information regarding the nature of the required work, inquiry should be made of the Director of the School of Music.

For the purpose of election by non-music majors the courses in music fall under the Twenty Credits Rule, as if they were elections outside the College of Letters and Science (see section 16, page 57). Students enrolled in other schools and colleges of the University are allowed to take courses in the School of Music, subject to the approval of their adviser, the Director of the School, and their Dean (given in writing), under the following conditions: credits in theoretical music courses, not to exceed twenty, may be elected by sophomores, juniors, and seniors; similarly not to exceed ten credits in intermediate and advanced applied music may be elected by juniors and seniors; the maximum number of credits in both theoretical and applied music may not exceed twenty. Any student may take courses in applied music without credit provided he can qualify for them. In the case of organ, piano and violin, non-music majors will be required to satisfy the entrance requirements for majors in these subjects, whether or not the subjects be taken for credit.

All students must present their registration cards from the Registrar's office, before being assigned to classes in the School of Music. All students in applied music will be examined by the Assignment Committee of the School of Music to learn the status of their work and, in the case of juniors and seniors other than those in the School of Music, to determine whether or not the subject may be taken for credit.

The regular university calendar applies to the School of Music, but students in applied music not seeking credit may enter at any time.

REQUIREMENTS FOR ADMISSION

The general requirements, in addition to those for admission to the University, include successful (1) ear and rhythm test, (2) dictation test, (3) written test dealing with music fundamentals, (4) written test dealing with music background, (5) sight-singing of simple songs employing one of the following methods: syllabes, numbers, letters, intervals (items to be considered are: pleasing tone quality, fluency, feeling for phrase, rhythm, and general musicality), (6) instrumental performance upon piano or upon student's major instrument when it is other than the piano (students should bring their instruments and music), (7) students expecting to major in school music (vocal) must give evidence of possessing a singing voice of pleasing quality and adequate range.

TRANSFERS. All transfer students must undergo a successful examination before they may be admited to the School of Music.

SPECIAL REQUIREMENTS FOR MAJORS IN APPLIED MUSIC

PIANO. Applicants for admission, whether enrolled for credit or not, will be required to play music of the following grade or its equivalent: easier sonatas by Haydn and Mozart, Czerny, Op. 299, Books I and II, Heller, Op. 47, easier *Songs Without Words* by Mendelssohn. Knowledge of the formation, signatures, and fingering of major and minor scales is necessary; also the ability to read at sight hymn tunes and simple accompaniments.

VOICE. The student must be able to read simple music and must have had training equal to the first half of Concone, with the usual technical study for the same period.

VIOLIN. Candidates must be well grounded in correct position, intonation, tone, and bowing, and must have mastered the equivalent of David's *Violin School,* Part 1, and the easier pieces of Dancla, Alard and others.

ORGAN. No previous knowledge of organ playing is required, but a student will not be enrolled for this major unless he has acquired a satisfactory pianoforte technique and some skill in polyphonic playing.

FEES AND TUITION

Students studying for a degree in music and others taking theory courses are required to pay the regular university fees. Those taking courses in applied music, either regularly enrolled students or other students in applied music, are required to pay also the tuition fees charged for such instruction, as noted below. Special students taking only private instruction in applied music are not required to pay the general fee or the nonresident tuition fee.

Students enrolling at any time previous to the fifteenth day of any semester will be charged the full applied music and practice room fees for the semester. Students enrolling thereafter may receive a reduction at the discretion of the Director. All fees must be paid before instruction begins.

Applied music fees are refunded in full if no lesson has been taken and if the name of the student does not appear on the schedule of the instructor. No refund is made after mid-semester except in cases of protracted illness and on recommendation of the instructor to the Director. Practice room fees are refunded on the basis of time expired until mid-semester, after which no refund is made.

Tuition in applied music, per semester for undergraduate music majors:
Professional fee (1 private and 1 class lesson) $30.00
Tuition in applied music, per semester, for all other music students and music majors

desiring additional lessons:

One private lesson a week	$25.00
Two private lessons a week and one class lesson	45.00*
One class lesson a week	15.00
Rent of practice rooms, per semester:	
Organ, one hour daily	9.00**
Piano, one hour daily	4.00
Rent of band and orchestral instruments	2.50
Laboratory fees per semester:	
Music 30, 40, 50, 60, 131, 165, 231, each	$1.00
Music 75	5.00

ORGANIZATIONS

A School of Music major may elect a maximum of two organizations in any one semester, only one of which may be taken for credit. Non-music majors may secure only one credit per semester for participation in one or more of these organizations and may not count more than six credits for participation in orchestra, band, and chorus. Freshmen in or outside of the School of Music receive no credit for participation the first year in Orchestra, Band or Chorus. Only music majors may receive the maximum of 2 credits in Orchestra after the freshman or apprentice year; others may elect Orchestra for one credit per semester.

THE UNIVERSITY ORCHESTRA has a membership of about eighty players. Two full rehearsals and one sectional rehearsal are held each week. Membership is open to the entire student body on the basis of tryouts. Music students who qualify may receive one or two credits listed as Music 85, but may not count more than eight credits in Orchestra toward graduation. Freshmen may enroll without credit. Mr. Bricken, Director.

THE SECOND ORCHESTRA is open to all university students who, through lack of experience or because of conflict, do not play in the regular University Orchestra. The fundamentals of orchestral playing are stressed in the study of the easier types of music. Practical experience in conducting and interpretation is offered. Instruments may be rented from the School of Music. Mr. Luckhardt, Director.

THE UNIVERSITY CHORUS, an organization of two hundred voices, studies and performs masterpieces of choral literature. Membership is on a competitive basis and is open to any student in the University, including graduate students. Music 86, 1 cr. Freshmen may enroll without credit. Mr. Swinney and Mr. Jones, Directors.

THE UNIVERSITY BANDS consist of two hundred men divided into a Concert Band, a First Regimental Band, and a Second Regimental Band. The Regimental Bands serve as a training school for the Concert Band and play for the Military Department at official functions. The University Bands also play for university convocations and cooperate with the Athletic Department at games. Each organization rehearses three times weekly. Underclassmen may elect Band to fulfill the physical activity requirement. Upperclassmen who are members of the Concert Band and members of the Regimental Bands who are invited to remain for duty at Commencement receive a stipend of thirty dollars. Membership in band is determined by tryouts. Members of the University Bands may receive one credit beginning with the sophomore year by registering in Music 87. Mr. Dvorak, Director.

CONCERTS AND RECITALS

Lecture-recitals and concerts, open to the public without charge, are given by members of the Faculty of the School of Music at frequent intervals during the concert season.

*For junior and senior applied music majors only.
**This rate does not apply to the use of the concert organ, for which special arrangements must be made.

COURSES IN MUSIC

The major in School Music is open only to students seeking both the Bachelor of Music degree and the University Teachers' Certificate; the major in Applied Music and the major in Theory and History, which lead to the Bachelor of Music degree, are open to students who are not candidates for the University Teachers' Certificate as well as to those who are. The outline of the major in School Music incorporates at appropriate places the courses in education required for the Teachers' Certificate; the outlines of the two other majors do not. But the student in either of these two majors who desires to secure the Teachers' Certificate also may do so by substituting the required courses in education for Letters and Science electives—subject of course to the regulations set forth in the paragraph, just below, entitled "Teachers' Certificate."

GENERAL REQUIREMENTS FOR THE DEGREE OF BACHELOR OF MUSIC AND FOR THE TEACHERS' CERTIFICATE

Subject to the rule of the College of Letters and Science relating to quality of work (see section 13, page 49) for the degree alone, omitting the Teachers' Certificate, a total of 120 credits and 120 grade-points is required, including a minimum of 54 credits in the College of Letters and Science and 46 to 66 credits in the School of Music, the exact proportion to be decided on consultation with the Director. English 1, 6 credits, a freshman history course, 6 credits, together with 6 credits in English 30, 32, 33, or 40, or 6 credits in History 4, as well as one foreign language, are required. Advanced courses in history, totaling 6 credits, may be substituted for History 4 in the sophomore year. The foreign-language requirement may be satisfied either (1) by meeting the language requirements of the B.A. degree; (2) by passing an intermediate examination in French, German, or Italian; or (3) by securing in high school and college the equivalent of sixteen credits in French, German, or Italian, the last four of which must be passed in this University with a grade of at least C. Only those students will be enrolled as juniors in the School of Music who have earned a point-credit ratio of 1.6 in music subjects of the freshman and sophomore years, and in addition have passed satisfactorily the comprehensive examination described above.

Teachers' Certificate. Candidates for the degree of Bachelor of Music who wish to obtain the University Teachers' Certificate are required to register also in the School of Education at the beginning of the junior year and to earn (subject to the quality-of-work rule) a total of 124 credits and 124 grade-points, including a minimum of 40 credits in Letters and Science and the 18 required credits in education. The degree for such students will not be awarded unless and until the requirements for the certificate have been met, and *vice versa*.

The following education courses are required:

1. Either Educational Methods 2a and 2b (old Music 51 and 53), The teaching of vocal methods, 5 credits, or Educational Methods 3a and 3b (old Music 91 and 92), The teaching of instrumental methods, 5 credits.
2. Education 73, The child: his nature and his needs, 3 credits.
3. Education 74, The school and society, 3 credits.
4. Education 75, The nature and direction of learning, 5 credits.
5. Elective in education, 2 credits.

OUTLINE OF COURSES

FIRST TWO YEARS: NORMAL SEQUENCE

FRESHMAN YEAR

First Semester	Credits	Second Semester	Credits
Music 61a, 62a, 63a, or 64a	2	Music 61b, 62b, 63b or 64b	2
Music 11a—Elementary theory	4	Music 11b—Elementary theory	4
Foreign language	3-4	Foreign language	3-4
English 1a—Freshman composition	3	English 1b—Freshman composition	3
History 1, 2, 5, or 10 (Yr. course)	3	History 1, 2, 5, or 10	3
Physical activity	0-(1)	Physical activity	0-(1)
	15-16		15-16

SOPHOMORE YEAR

Music 71a, 72a, 73a, or 74a	2	Music 71b, 72b, 73b, or 74b	2
Music 21a—Advanced theory	4	Music 21b—Advanced theory	4
Music 20a—Appreciation and history	2	Music 20b—Appreciation and history	2
Foreign language	3-4	Foreign language	3-4
English 30a, 32a, 33a or 40a, or history	3	English 30b, 32b, 33b, or 40b or history	3
Music 85—Orchestra	2-1	Music 85—Orchestra	2-1
or Music 86—Chorus, or 87—Band	(1)	or Music 86—Chorus, or 87—Band	(1)
	16		16

MAJOR IN APPLIED MUSIC: NORMAL SEQUENCE FOR DEGREE

JUNIOR YEAR

Music 81a, 82a, 83a, or 84a	3	Music 81b, 82b, 83b, or 84b	3
Music 31—Advanced counterpoint	3	Music 32—Choral harmonization and figured bass	3
or Music 33a—Harmony	(3)	or Music 33b—Advanced harmony	(3)
Music 30—History of musical form	2	Music 40—Analysis	2
Letters and Science	6	Letters and Science	5
Electives in music	2	Electives in music	3
	16		16

SENIOR YEAR

Music 91a, 92a, 93a, or 94a	3	Music 91b, 92b, 93b, or 94b	3
Music 50—Classical period	3	Music 60—Romantic period	3
Letters and Science	6	Letters and Science	5
Electives in music	4	Electives in music	5
	16		16

MAJOR IN SCHOOL MUSIC—VOCAL OR INSTRUMENTAL NORMAL SEQUENCE FOR DEGREE AND CERTIFICATE

JUNIOR YEAR

Music 81a, 82a, 83a, or 84a	2	Music 81b, 82b, 83b, or 84b	2
Music 75a—Instrumental class instruction	2	Music 75b—Instrumental class instruction	2
Music 31—Advanced counterpoint	3	Music 32—Choral harmonization and figured bass	3
or		or	
Music 33a—Advanced harmony	(3)	Music 33b—Advanced harmony	(3)
Music 85, 86, or 87	1-2	Music 85, 86, or 87	1-2
Education 73—The child: his nature and needs	3	Education 75—The nature and direction of learning	5
Music 76—Conducting	2	Letters and Science	2-3
Education elective	2		
	15-16		15-16

SENIOR YEAR

Music 91a, 92a, 93a, or 94a	2	Music 91b, 92b, 93b, or 94b	2
Educational Methods 2a or 3a	3	Educational Methods 2b or 3b	2
Music 30—History of musical form	2	Music 40—Analysis	2
Electives in music	5	Music 34—Arranging	2
Letters and Science	3	Education 74—The school and society	3
Music 85, 86, or 87	1-2	Music 85, 86, or 87	1-2
		Letters and Science	3
	16		15-16

MAJOR IN THEORY AND HISTORY: NORMAL SEQUENCE FOR DEGREE

JUNIOR YEAR

Music 81a, 82a, 83a, or 84a	2	Music 81b, 82b, 83b, or 84b	2
Music 30—History of musical form	2	Music 40—Analysis	2
Music 31—Advanced counterpoint	3	Music 32—Choral harmonization and figured bass	3
Music elective	2	Music elective	2
Letters and Science	6-7	Letters and Science	6-7
	15-16		15-16

SENIOR YEAR

Music 91a, 92a, 93a, or 94a	2	Music 91b, 92b, 93b, or 94b	2
Music 41—Canon and chorale—preludes	3	Music 41b—Canon and chorale—preludes	3
Music 50—Classical period	3	Music 60—Romantic period	3
Electives in music	7	Electives in music	7
	15		**15**

DEPARTMENTS OF INSTRUCTION

Abbreviations used in the announcement of courses:
Yr—a continuous course extending through two semesters
I—course given during the first semester
II—course given during the second semester
I, II—semester course given each semester
cr—number of credit hours per semester
*cr—credit to be arranged

Courses numbered under 100 may be credited only by undergraduates; those in the 100-group may be credited by both undergraduates and graduates; those in the 200-group are ordinarily open only to graduates.

NON-DEPARTMENTAL COURSES

Under the provisions of the report of a special faculty committee, recently accepted by the University Faculty, three new courses listed below will be offered beginning with the academic year 1940-41.

1. Freshman Forum. Yr; 1 cr. Weekly lectures presenting problems of the modern world. Designed to assist freshmen in orienting themselves in University life. Students taking the course for credit will have required written work and an examination. Mr. Dykstra and members of the faculty.

2. History and Significance of Science. I, II; 3 cr. Aims, methods, achievements, and influence of science. Prerequisite: Sophomore standing. Not offered 1940-41. Staff.

103. Trends in Contemporary Civilization. II; 3 cr. Designed to interpret recent economic, political, and technological developments in relation to present-day problems. Prerequisite: Senior standing. Staff.

ART HISTORY AND CRITICISM

Professor Hagen, *chairman*; Instructors Kienitz, Watrous.

The department offers to the general student semester courses providing broad surveys of the history of art based upon aesthetic analysis, i.e., appreciation and interpretation. Students unfamiliar with the history of art should normally not elect an advanced course before they have taken an elementary course. Courses 50 and 54 are designed to familiarize the student with the principal art trends (architecture, sculpture, and painting) from the art of Egypt to the art of the present day. The courses offered in the hundred-group treat in a more specific way subjects introduced and broadly sketched in the survey group. These courses not only serve majors, but are of general cultural interest and may supplement the work done in the departments of history and literature. A selection from the courses listed below is offered each year in adequate sequence.

Major. 26 credits; in addition, a reading knowledge of French, German, or Italian; 12 credits in history as a minimum (courses particularly recommended are History 1, Medieval history, and History 134, The Renaissance).

It is also recommended, especially for those who expect to teach history of art, that from 6 to 10 credits be taken in the courses in techniques offered by Mr. Watrous. The requirements for a teachers' certificate may be found under the School of Education.

Hispanic Studies as a Field of Concentration. Students interested in this major field should consult page 51.

22. Elements of the Fine Arts. I, II; 3 cr. Analysis of the conditions—local, general, personal and technical—that give rise to architectural, scultpural, and pictorial art expression. Prerequisite: Sophomore standing. Mr. Kienitz.

44. Medieval Art. I; 3 cr. Architecture, painting, and sculpture, from Early Christian times to the end of the Middle Ages. Prerequisite: Sophomore standing. Mr. Hagen.

50. Egyptian, Greek, and Christian Art. I; 3 cr. The great originative styles of Egypt, Hellas, and the Christian West through the Gothic period in architecture, sculpture, and painting. Prerequisite: Sophomore standing. (While course 54 offers a continuation of the historical development to the present day, it should be taken before course 50 as an introduction to the principles of the study of Art History.) Mr. Hagen.

54. Renaissance to Modern Art: How the Artist Sees and Presents Reality. I; 3 cr. Representative masters; problems of vision constituting the history of painting, sculpture, and architecture from the fifteenth century to the present. Prerequisite: Sophomore standing. Mr. Watrous.

101. History of the Graphhic Arts. II; 2 cr. History of woodcut, engraving, and etching from the origins in the 15th century. Prerequisite: Sophomore standing. Mr. Watrous.

104. Renaissance and Baroque Sculpture. I; 2 cr. Prerequisite: Sophomore standing. Mr. Kienitz.

106. Modern European Arts. II; 3 cr. The Generations of the 19th and 20th centuries. Prerequisite: A semester course in Art History. Mr. Kienitz.

110. Proseminary. I, II; 2 cr. Research problems in art criticism. Prerequisite: Consent of instructor. Mr. Kienitz.

125. History of German Art. 3 cr. Prerequisite: Junior standing or Art History 54. Not offered 1940-41.

131. American Architecture. I; 3 cr. Prerequisite: Sophomore standing. Mr. Kienitz.

139. Development of Modern Architecture. II; 3 cr. Prerequisite: Sophomore standing. Mr. Kienitz.

140. Elementary History of Art Techniques. I; 3 cr. Prerequisite: Art History 54 or concurrent registration. Mr. Watrous.

142. The Historical Techniques of Painting. II; 3 cr. Prerequisite: Art History 140 or concurrent registration or junior standing in Art Education. Mr. Watrous.

146. Proseminary: The History of Tools and Media of the Artist. I, II; 2 cr. Prerequisite: Art History 142 or concurrent registration. Mr. Watrous.

151. Italian Painting of the Renaissance. II; 3 cr. From Masaccio to Raphael, Michelangelo and Titian. Prerequisite: Sophomore standing. Mr. Watrous.

152. Northern Painting of the Renaissance. I; 3 cr. Painting in the Netherlands and Germany from the Van Eycks to Albrecht Duerer. Prerequisite: Sophomore standing. Mr. Watrous.

153. Representative Painters of the Seventeenth Century. II; 3 cr. Prerequisite: Sophomore standing. Mr. Hagen.

156. British Painting from Holbein to the Pre-Raphaelites. I; 2 cr. Prerequisite: Art History 54 or one semester of Art History. Mr. Hagen.

157. Patterns and Principles of Spanish Art. II; 2 cr. Prerequisite: Sophomore standing. Mr. Hagen.

159. Development of American Art. II; 3 cr. Prerequisite: Junior standing. Mr. Hagen.

210. SEMINARY. Yr; 2 cr. The subjects of research, which change from semester to semester, are generally chosen from the fields covered in the advanced courses. Prerequisite: Consent of instructor. Mr. Hagen.

ASTRONOMY

PROFESSOR STEBBINS, *chairman*; ASSISTANT PROFESSORS HUFFER, WHITFORD.

6. NAVIGATION AND PRACTICAL ASTRONOMY. II; 2 cr. The use of charts, compass, sextant, and transit; sea and air navigation. Prerequisite: Mathematics 2. Mr. Stebbins.

17. SURVEY OF ASTRONOMY. I, II; 3 cr. I, Mr. Stebbins; II, Mr. Huffer.

101. ASTROPHYSICS: THE SOLAR SYSTEM. I; 3 cr. The motions and physical properties of the members of the solar system. Prerequisites: Mathematics 1b or 3b, Physics 31. Mr. Huffer.

102. ASTROPHYSICS: STELLAR ASTRONOMY. II; 3 cr. The stars: distances and motions; physical state as shown by analysis of radiation. Structure of the galaxy; extragalactic systems. Prerequisites: Mathematics 1b or 3b, Physics 31. Mr. Whitford.

116. CELESTIAL MECHANICS. Yr; 3 cr. A mathematical study of the problems of two bodies, and of three or more bodies. Application to the orbits of binary stars, comets, and planets. Prerequisite: A course in calculus. Mr. Huffer.

200. RESEARCH. Yr; 3-5 cr. Graduate students and others qualified to pursue advanced astronomical studies may be given facilities for independent original work in the Washburn Observatory.

BACTERIOLOGY

The courses in the departments of Medical Bacteriology and Agricultural Bacteriology are accepted as regular Letters and Science courses. For descriptions of these courses see the bulletins of the College of Agriculture and the Medical School and also the semester time tables.

BIOLOGY

Study in the bioligical sciences is conducted in the independent though coordinated Departments of Botany, Zoology, Anatomy, Physiology, Physiological Chemistry, Genetics, Pathology and Medical Bacteriology, Pharmacology and Toxicology, Plant Pathology, and Agricultural Bacteriology.

1. GENERAL BIOLOGY. Yr; 5 cr. An elementary one-year course in general biology may be taken by combining Botany 1 and Zoology 1, both of which are given each semester. Either one may precede the other, although the normal order is to follow botany with zoology. Introductory to botany, zoology, anatomy, bacteriology, and physiology. (See Botany 1 and Zoology 1.)

THE TEACHING OF BIOLOGY. See School of Education.

BOTANY

PROFESSORS ALLEN, BRYAN, DUGGAR, GILBERT, *chairman*, KEITT; ASSOCIATE PROFESSORS FASSETT, FISK; ASSISTANT PROFESSORS BACKUS, DENNISTON, EVANS, STAUFFER; INSTRUCTORS CURTIS, GREENE.

MAJOR. 30 credits, including thesis, Botany 1, and an elementary course in zoology. A thesis is required of all seniors majoring in botany unless exception is made by the chairman of the department.

1. GENERAL BOTANY. I, II; 5 cr. Preliminary to all advanced work. Lab. fee $5.00. Mr. Bryan, Miss Fisk, and staff.

2. Advanced General Botany. II; 5 cr. Prerequisite: Botany 1. Lab. fee $5.00. Mr. Bryan and staff.

17. Survey of Botany: Nature of the Plant World. II; 3 cr. Open to all students, excepting those who have taken Botany 1 or its equivalent. Lab. fee $3.00. Mr. Evans.

100. Senior Thesis. Yr; 2-3 cr. A subject should be selected, if possible, before the close of the junior year. Lab. fee $1.50 per cr. Staff.

101. Diseases of Plants. I; 3 cr. Prerequisites: Botany 1 and Agr. Bact. 1. Lab. fee $4.50. Mr. Walker, Mr. Backus.

102. Methods in Plant Pathology. I; 3 cr. Prerequisite: Botany 101. Lab. fee $4.50. Mr. Riker.

103. Morphology of Algae. I; 3 cr. Prerequisite: Botany 1. Offered 1940-41 and in alternate years. Lab. fee $3.50. Mr. Allen.

104. Morphology of Fungi. I; 3 cr. Prerequisite: Botany 1. Lab. fee $3.50. Mr. Gilbert.

107. Morphology of Gymnosperms. I; 3 cr. Prerequisite: Botany 1. Offered 1941-42 and in alternate years. Lab. fee $3.50. Mr. Bryan.

108. Morphology of Angiosperms. II; 3 or 4 cr. Prerequisite: Botany 1. Lab. fee $3.50. Miss Fisk.

110. Plant Histology. I; 3 or 4 cr. Prerequisite: Botany 1. Lab. fee $3.50. Mr. Denniston.

111. Microscopical Examination of Drugs and Foods. II; 3 cr. Prerequisite: Botany 110. Lab. fee $3.50. Mr. Denniston.

112. Morphology of Bryophytes. II; 3 cr. Prerequisite: Botany 1. Offered 1941-42 and in alternate years. Lab. fee $3.50. Mr. Allen.

113. Morphology of Pteridophytes. II; 3 cr. Prerequisite: Botany 1. Offered 1940-41 and in alternate years. Lab. fee $3.50. Mr. Bryan.

117. Structure of Economic Plants. I; 3 cr. Prerequisite: Botany 1. Lab. fee $3.50. Miss Fisk.

129. Classification of Cultivated Plants. I; 2 or 3 cr. Prerequisite: Botany 1. Lab. fee $3.00. Miss Fisk.

130. Identification and Classification of Seed Plants. II; 3 or 4 cr. Prerequisite: Botany 1. Lab. fee $3.00. Mr. Denniston.

131. Dendrology. II; 2 cr. Prerequisite: Botany 1. Lab. fee $1.50. Mr. Denniston.

146. Plant Physiology. II; 4 cr. Prerequisites: Botany 1 and some elementary knowledge of physics and chemistry. Lab. fee $5.00. Mr. Stauffer, Mr. Curtis.

153. Botanical Technique. Yr; 2 cr. Training in the preparation of plant material for study, including practice in killing, staining and mounting. Prerequisite: Botany 1. Lab. fee $3.00. Mr. Gilbert.

154. Evolution of Plants. I; 2 cr. Prerequisites: Botany 1 and 2. Offered 1941-42 and in alternate years. Mr. Allen.

156. Inheritance and Variation. II; 2 cr. Prerequisites: Botany 1 and 2. Offered 1940-41 and in alternate years. Mr. Allen.

160. Flora of Wisconsin and Its Conservation. II; 3 cr. Prerequisite: Open to advanced students in the natural sciences. Lab. fee $3.50. Mr. Fassett, Mr. Curtis.

162. Advanced Taxonomy. I; 2-4 cr. Prerequisite: Botany 129 or 130, or 160. Offered 1940-41 and in alternate years. Fee $1.00 per credit. Mr. Fassett.

163. Identification and Classification of Grasses. I; 2 cr. Prerequisite: Botany 129 or consent of instructor. Fee $1.00 per credit. Mr. Fassett.

164. Principles of Plant Ecology. II; 3 cr. Lectures, laboratory and field trips. Prerequisites: Botany 1 and sophomore standing. Lab. fee $1.50. Miss Fisk, Mr. Fassett, Mr. Curtis.

165. Field Botany. II; 3-4 cr. Observation, collection and identification; application in the field of botanical training; for those who will teach biology. Prerequisite: At least 7 credits in botany. Lab. fee $1.00. Mr. Fassett, with cooperation of the department.

166. Methods in Plant Conservation. I; 1 or 2 cr. Application of physiological and ecological methods to the preservation or restoration of the native flora. Prerequisite: Botany 146 or Botany 164, or consent of instructor. Mr. Curtis.

176. Nutrition and Growth of Plants. I; 3 cr. Laboratory course with informal discussions devoted to nutrition of plants and the relation of food and accessory substances to plant growth. Prerequisite: Botany 146. Lab. fee $5.00. Mr. Stauffer, Mr. Curtis.

180. Advanced Botanical Problems. I, II; 2-5 cr. Individual work dealing with advanced phases of botany not taken up in the regular courses. Prerequisites: Upper-group standing and consent of instructor. Se eSection 20, page 60. Lab. fee $1.50 per cr. Staff.

200. Research. Yr; *cr. Investigation may be undertaken in any department of botany in which the student's preparation is adequate. Lab. fee $2.00 per credit. Staff.

213. Proseminary. Yr; 1 cr. Open to honor seniors and first-year graduate students in botany. Offered 1940-41 and in alternate years. Mr. Gilbert.

214. Seminary in General Botany. Yr; *cr. Mr. Allen.

215. Seminary in Plant Physiology. Yr; *cr. Mr. Duggar.

220. Advanced Mycology. Yr; 2 cr. Morphology and classification of fungi. Prerequisites: Botany 101, 104. Offered 1940-41 and in alternate years. Lab. fee $2.00. Mr. Gilbert.

221. Classification of Parasitic Fungi. Yr; *cr. Offered 1941-42 and in alternate years. Prerequisite: Botany 101 or 104. Mr. Backus, Mr. Greene.

247. Advanced Plant Physiology. Yr; *cr. Prerequisite: Botany 146. (No laboratory in 1940-41; given for 2 lecture credits only.) Mr. Duggar.

248. Physiological Methods and Materials. I; 3 cr. Prerequisite: Botany 146. Lab. fee $2.50. Mr. Duggar, Mr. Stauffer, Mr. Curtis.

249. Special Physiology of Pathogenic Fungi. II; 2-4 cr. Prerequisite: Botany 146. Lab. fee $1.50 per cr. Lectures, reports; lab. optional. Mr. Duggar.

250. Cytology. Yr; 5 cr. Prerequisites: Botany 1 and 2. Lab. fee $5.00. Mr. Allen.

252. Cytology of the Fungi. II; 1-2 cr. Various methods of fixation and staining of fungi, with laboratory exercises applying these methods. Prerequisite: At least one semester of general cytology. Lab. fee $2.00 per cr. Mr. Gilbert.

See Zoology 106 and 107 and Genetics 1 to 105 for other courses in evolution and heredity; also Horticulture 7 and 8 for courses in plant propagation and floriculture. The announcements of the Departments of Genetics and Horticulture appear in the College of Agriculture.

CHEMISTRY

PROFESSORS ADKINS, DANIELS, FISCHER, HALL, KAHLENBERG, KRAUSKOPF, MATHEWS, *chairman*, MCELVAIN, MELOCHE, SCHUETTE, WALTON, WILLIAMS; ASSOCIATE PROFESSOR SORUM; ASSISTANT PROFESSORS HOLT, KLEIN, ROSEVEARE; RESEARCH ASSOCIATE LUNDGREN; INSTRUCTORS BRIDGMAN, HEATH, JOHNSON, KELLER, WILDS, WILLARD.

REQUIREMENTS FOR THE MAJOR

To be accepted as a major in chemistry, a student must have a grade-point average of 1.5 or better in chemistry courses taken in his first two years.

Course No.	Title of Course	OPTIONAL FIELDS OF CONCENTRATION					
		Organic	Physical	Food	Inorganic	Premedical	Teaching
1	General chemistry and qualitative analysis	8-10 cr.	8-10 cr.	8-10 cr.	8-10 cr.	8-10 cr.	8-10 cr.
11	Quantitative analysis	6	8	7	8	6	8
120	Organic—lectures	4	4	4	4	4	4
121	Organic—laboratory	6	4	3	4	4	3
130	Physical—lectures	4	4	4	4	4	4
131	Physical—laboratory	4	6	3	4	4	3
100	Thesis	4	4	4	4	4	
123	Characterization of organic compounds	2					
146-7	Food chemistry			5			
104, 117	Physiological chemistry					8	
	Adv. technical elective				2		
	Total Credits	38-40	38-40	38-40	38-40	42-44	30-32

A minimum of 80 credits in subjects outside the major subject is required for graduation.

1a*. GENERAL CHEMISTRY. I; 5 cr. Theoretical chemistry and descriptive chemistry of the non-metals. Lab. fee and deposit $12.50. 2 hr. lecture, 4 hr. lab., 1 hr. quiz. Special sections for students who have had high-school chemistry. (Repeated second semester.) Mr. Walton, Mr. Krauskopf and staff.

1b. GENERAL CHEMISTRY AND QUALITATIVE ANALYSIS. II; 5 cr. Chemistry of the metals and qualitative analysis. Continuation of Chemistry 1a, which is prerequisite. Lab. fee and deposit, $12.50. Mr. Walton, Mr. Krauskopf and staff.

2a*. GENERAL CHEMISTRY. I; 4 cr. For freshmen in engineering only. Lab. fee and deposit, $12.50. 2 hrs. lecture., 4 hrs. lab., 1 hr. quiz. (Repeated second semester.) Mr. Holt, Mr. Heath and staff.

2b. GENERAL CHEMISTRY AND QUALITATIVE ANALYSIS. II; 4 cr. Continuation of Chemistry 2a, which is prerequisite. Lab. fee and deposit, $12.50. Mr. Holt, and staff.

3. QUALITATIVE ANALYSIS. II; 1 cr. Prerequisite: Concurrent registration in Chemistry 1b or 4b. Required of all chemistry course students. Lab. fee and deposit, $2.50. Mr. Walton and staff.

4a*. GENERAL CHEMISTRY. I; 5 cr. For the following students: chemistry course, chemistry majors; chemical, mining, and metallurgical engineers. May be elected by students majoring in the applications of chemistry, for example biochemistry and bacteriology, or consent of instructor. Lab. fee and deposit $12.50. 2 hr. lecture, 4 hr. lab., 1 hr. quiz. (Repeated second semester.) Mr. Sorum and staff.

4b. GENERAL CHEMISTRY AND QUALITATIVE ANALYSIS. II. Continuation of 4a. Prerequisite: 1a, 2a, 4a, or equivalent. Lab. fee and deposit $12.50. Mr. Sorum and staff.

*Students who have completed one year of high-school chemistry including laboratory work may be excused from laboratory work in the course by passing an examination.

10. Mathematical Chemistry. I; 3 cr. Preparation for Chemistry 130. Not ordinarily open to candidates for the B.S. degree in chemistry. Prerequisites: Algebra, trigonometry, and Chemistry 1 or 2. Mr. Daniels.

11. Quantitative Analysis. Yr; 3-5 cr. Prerequisite: General chemistry, including qualitative analysis. The first semester of this course is repeated in the second semester. Lab. fee and deposit, 3 or 4 cr., $17.50; 5 cr., $22.50. 3-9 hrs. lab. Mr. Hall and staff.

12. Quantitative Analysis. I; 3 cr. For agricultural students only. Prerequisite: General chemistry, including qualitative analysis. Lab. fee and deposit, $17.50. 5 hrs. lab. Mr. Meloche and staff.

14. Quantitative Analysis. I; 5 cr. For engineering students only. Prerequisite: General chemistry, including qualitative analysis. Lab. fee and deposit, $22.50. 9 hrs. lab. Mr. Meloche and staff.

17. Survey of Chemistry: Nature of the Chemical World. II; 4 cr. A brief course designed to fulfill in part the non-professional science option for the B.A. and Ph.B. degrees. Fee and deposit, $2.00. Staff.

99. Special Chemical Problems. I, II; 2-4 cr. Lab. fee, $4.25 per credit. Staff.

100. Senior Thesis. Yr; 2-3 cr. Lab. fee and deposit, 2 cr. $10; 3 cr. $12.50 per semester. Staff.

106. Advanced Analytical Practice. I, II; *cr. Prerequisite: Chemistry 11b. Special analytical techniques including microscopic and other instrumental methods. Lab. fee and deposit, 1 cr., $8.00; $4.50 per additional credit. Mr. Meloche.

107. History of Chemistry. I; 2 cr. Prerequisite: Chemistry 11, 120, or consent of instructor.

108. Advanced Qualitative Analysis. Yr; 2-5 cr. Prerequisite: Chemistry 1b. Offered 1941-42 and in alternate years. Lab. fee and deposit, 2 cr., no fee; 3 cr., $8.00; $4.50 per additional credit. Mr. Krauskopf.

113. Water Analysis. II; 1 cr. An eight-week course devoted to the sanitary chemical analysis of water and sewage. Prerequisite: Chemistry 11 or consent of instructor. Lab. fee and deposit, $6.50. Mr. Schuette.

116. Industrial Organic Analysis. I, II; *cr. Prerequisites: Chemistry 11a and 120a. Lab. fee and deposit, 1 cr., $8.00; $4.50 per additional credit. Mr. Schuette.

117. Inorganic Preparations. I, II; 2-5 cr. Prerequisite: Chemistry 1b or 2b. Lab. fee and deposit. 2 cr., $12.50; $4.50 per additional credit. Mr. Meloche.

118. Iron and Steel Analysis. I, II; 2-5 cr. Prerequisite: Chemistry 11 or 14. Lab. fee and deposit, 2 cr., $12.50; $4.50 per additional credit. Mr. Meloche.

119. Organic Analysis. I; 3 cr. An introduction to the methods for quantitative determination of elements and functional groups. Prerequisites: Chemistry 11a and 120a. Lab. fee and deposit, $15.00. Mr. Schuette.

120a. Organic Chemistry. I, II; 2 cr. An introductory course. Prerequisite: Chemistry 1. Courses 120a and 121a should be taken concurrently. Mr. Adkins, Mr. McElvain, and Mr. Klein.

120b. Organic Chemistry. II; 2 cr. Prerequisite: Chemistry 120a. Courses 120b and 121b should be taken concurrently. Mr. McElvain.

121a. Organic Chemistry. I, II; 1-3 cr. Prerequisite: Credit or concurrent registration in Chemistry 120a. Lab. fee and deposit, 1 cr., $12.50; 2 cr., $17.50; 3 cr., $22.50. Lab. 3-8 hrs. Mr. Klein and staff.

121b. Organic Chemistry. II; 1-3 cr. Prerequisite: Credit or concurrent registration in 120b. Lab. fee and deposit, 1 cr., $12.50; 2 cr., $17.50; 3 cr., $22.50. Lab. 3-8 hrs. Mr. Klein and staff.

123. Characterization of Organic Compounds. I; 4 cr. A study of homologous reactions, separation, and identification of organic compounds. Designed as an aid

to research involving organic compounds. Prerequisites: Chemistry 120 and 121. Lab. fee and deposit, $17.50. Mr. McElvain, Mr. Johnson.

124. Advanced Survey of Organic Chemistry. I; 3 cr. Prerequisite: Chemistry 120. Mr. Adkins.

125. Advanced Organic Preparations. Yr; *cr. Prerequisite: Chemistry 121. Lab. fee and deposit, 1 cr., $8.00; $4.50 per additional credit. Mr. Adkins, Mr. McElvain, Mr. Klein.

130. Physical Chemistry. Yr; 2 cr. Should be taken concurrently with Chemistry 131. *Section I*: For non-chemical engineering students. Prerequisites: Chemistry 1 and 11; Physics 1 or 31, Math. 101 or 103, or consent of instructor. Mr. Mathews, Mr. Roseveare, and staff. *Section II*: For chemical engineering students only. Prerequisites: Chemistry 14, Physics 51 and 52, Mathematics 102a and 102b. Mr. Daniels, Mr. Williams, and staff.

131. Physical Chemistry. Yr; 1-3 cr. Prerequisite: Credit or concurrent registration in Chemistry 130. Lab. fee and deposit, 1 cr., $12.50; 2 cr., $15.00; 3 cr., $17.50. Lab. 3 to 8 hrs. Mr. Daniels, Mr. Roseveare, and staff.

133. Photochemistry. I; 2 cr. Prerequisites: Chemistry 130 and 131. Offered 1940-41 and in alternate years. Mr. Mathews.

146. Chemistry of Foods and Their Adulteration. II; 2 cr. Critical study of foods from the standpoint of (1) fundamental basis of nutritional value and (2) character and legal status of adulteration. Prerequisites: Chemistry 11a and 120a. Mr. Schuette.

147. Chemistry of Foods and Their Adulteration. II; 1-3 cr. A laboratory course to accompany, if desired, Chemistry 146. Prerequisite: Chemistry 146 or concurrent registration. Fee and deposit, 1 cr. $12.50; $2.50 per additional credit. Mr. Schuette.

148. Introduction to Physical and Colloid Chemistry. II; 3-5 cr. Particularly for students in the biological and geological sciences. Prerequisite: Consent of instructor. Offered in 1941-42 and in alternate years. Lab. fee and deposit, 1 cr., $12.50; 2 cr., $15.00; 3 cr., $17.50. Mr. Williams and staff.

149. Colloid Chemistry. I; 2 cr. Prerequisites: Chemistry 130 and 131. Mr. Williams.

151. Advanced Inorganic Chemistry. Yr; 2 cr. Offered 1940-41 and in alternate years. Mr. Hall and Mr. Holt.

153. Advanced Instrumental Analysis. I, II; *cr. Prerequisite: Chemistry 131. Lab. fee and deposit, 1 cr., $8.00; $4.50 per additional credit. Mr. Meloche.

155. Advanced Quantitative Analysis. I; 2 cr. Offered 1941-42 and in alternate years. Mr. Hall.

161. The Phase Rule. II; 2 cr. Offered 1941-42 and in alternate years. Prerequisite: Chemistry 130. Mr. Sorum.

180. Advanced Independent Study. I, II; *cr. Open only to superior students. (See Sec. 20, p. 70).

200. Research in Chemistry. Yr; *cr. Lab. fee and deposit, $4.50 per credit. Staff.

223. Advanced Organic Chemistry. II; 3 cr. Prerequisite: Chemistry 124. Mr. Adkins, Mr. McElvain.

224, 225. Advanced Organic Chemistry. I, II; 3 cr. Prerequisite: Chemistry 124. Mr. McElvain, Mr. Link, Mr. Klein, Mr. Johnson, Mr. Wilds.

230. Advanced Physical Chemistry. Yr; 3 cr. Prerequisites: Chemistry 130 and 131. I, Mr. Daniels; II, Mr. Roseveare.

234. CHEMICAL THERMODYNAMICS. I; 2 cr. Prerequisite: Chemistry 230. Offered in 1941-42 and in alternate years. Mr. Roseveare.

236. CHEMICAL KINETICS. II; 2 cr. Offered 1940-41 and in alternate years. Prerequisite: Chemistry 130. Mr. Daniels.

237. QUANTUM CHEMISTRY. II; 2 cr. Prerequisite: Chemistry 230. Offered in 1941-42 and in alternate years.

239. SEMINARY IN PHYSICAL AND COLLOID CHEMISTRY. Yr; 1 cr. Prerequisite: Chemistry 130. Mr. Mathews, Mr. Daniels, Mr. Roseveare.

247. SEMINARY IN ORGANIC CHEMISTRY. Yr; 1 cr. Mr. Adkins, Mr. McElvain, Mr. Klein.

249. ADVANCED COLLOID CHEMISTRY. II; 2 cr. Prerequisite: Chemistry 149. Mr. Williams.

252. SEMINARY IN INORGANIC AND ANALYTICAL CHEMISTRY. Yr; 1 cr. Mr. Hall, Mr. Meloche.

254. SEMINARY IN FOODS AND SANITATION. Yr; 1 cr. Mr. Schuette.

263. SEMINARY IN GENERAL CHEMISTRY. Yr; 1 cr. Mr. Walton, Mr. Krauskopf, Mr. Sorum, Mr. Bridgman, Mr. Willard.

TEACHERS' COURSE

THE TEACHING OF CHEMISTRY. See School of Education.

CLASSICS

PROFESSOR AGARD, *chairman*; ASSOCIATE PROFESSOR WINSPEAR; ASSISTANT PROFESSORS HEIRONIMUS, WALLACE.

ATTAINMENT EXAMINATIONS. See Section 10, page 47. The normal preparation for the proficiency examination in Greek includes Greek 1, 10, 20, and 106 or 108; in Latin it includes aLtin 1, 10, 21, and 31 or 32.

MAJOR. In Greek, 28 language credits, exclusive of Greek 1; in Latin, 30 language credits beyond Latin 1b (or two years of high-school Latin), 22 language credits beyond Latin 10b (or four years of high-school Latin). Students choosing a foreign-language major must present at least eight credits in a second foreign language. For the teaching major and minor see School of Education.

GENERAL COURSES IN CLASSICS

The purpose of these courses is to give students who have had little or no Latin or Greek an understanding of the relation of classical culture to our own, especially in social institutions, literature and art. Knowledge of the Greek and Latin languages is not required, and in courses 41-122 no foreign-language credit is given.

41. GREEK LIFE AND LITERATURE. I; 2-3 cr. Greek literature in translation, with adequate regard to its social background. For three credits, additional reading and a final paper. Open to freshmen. Offered 1940-41 and in alternate years. Mr. Agard, Mr. Winspear.

42. ROMAN LIFE AND LITERATURE. II; 2-3 cr. Latin literature in translation, with adequate regard to its social background. For three credits, additional reading and a final paper. Open to freshmen. Offered 1940-41 and in alternate years. Mr. Winspear, Mr. Wallace.

51. CLASSICAL MYTHOLOGb. I; 2 cr. A survey ofc lassical myths and their influence on later literature and art. Open to freshmen. Offered 1941-42 and in alternate years. Mr. Agard.

122. Classical Art and Archaeology. II; 3 cr. The contribution of archaeology to an understanding of classical life, and a critical analysis of Greek and Roman art. Prerequisite: Sophomore standing. Offered 1941-42 and in alternate years. Mr. Agard, Mr. Wallace.

133. The Classical Background for Early Christianity. II; 3-4 cr. Late Greek and Roman philosophy and religious cults; Roman imperial organization and its influence on ecclesiastical organization. For four credits, reading in Greek or Latin, counting one credit toward a Greek or Latin major. Prerequisite: Sophomore standing. Offered 1941-42 and in alternate years. Mr. Winspear.

GREEK

1. Elementary Greek. Yr; 4 cr. Study of forms and syntax, with translation of easy Greek prose. Mr. Agard.

10. Homer and Plato. Yr; 3 cr. *Iliad, Apology, Crito.* Prerequisite: Greek 1. Mr. Agard.

20. Greek Drama and Lyric Poetry. Yr; 3 cr. Euripides' *Medea,* Sophocles' *Antigone,* and selections from Aeschylus, Aristophanes and the lyric poets. Prerequisite: Greek 10. Mr. Agard.

100. Senior Thesis. Yr; 2 cr. Staff.

106. Herodotus and Thucydides. Yr; 3 cr. A study of the sources for Greek fifth-century history. Prerequisite: Greek 20 or concurrent registration. Offered 1940-41 and in alternate years. Mr. Winspear.

108. Plato. Yr; 3 cr. Prerequisite: Greek 20 or concurrent registration. Offered 1941-42 and in alternate years. Mr. Winspear.

109. Aristotle. Yr; 3 cr. The *Nicomachean Ethics* and passages from the *Politics* and *Metaphysics.* Prerequisite: Greek 108 or consent of the instructor. Given on request. Mr. Winspear.

180. Directed Reading. Upper-group majors may secure a limited number of credits for reading done under the guidance of a member of the department. See section 20, page 60.

200. Individual Research. Yr; *cr. Staff.

210. Greek Epigraphy. II; 2-3 cr. An introduction to Greek inscriptions. Prerequisite: Greek 106 or consent of the instructor. Mr. Edson.

211. Greek Drama. Yr; 3 cr. Given on request. Mr. Agard.

226. Greek Sounds and Forms II; 2 cr. History and analysis of the Greek language. Offered 1940-41 and in alternate years. Mr. Dillon.

230. Greek Seminary. Yr; 2 cr. Subject for 1940-41: Aristotle. Mr. Winspear. Subject for 1941-42: Sophocles. Mr. Agard.

LATIN

1a. Elementary Latin. I; 4 cr. Study of forms and syntax, with simple translation into Latin and English, equivalent to a year of high-school Latin. Mr. Heironimus, staff.

1b. Caesar. II; 4 cr. Translation of easy prose, including selections from the *Gallic War;* analysis of English derivatives. Prerequisite: Latin 1a or one year of high-school Latin. Mr. Heironimus, staff.

10a. Cicero's Orations. I; 4 cr. Cicero as a politician and literary critic. Special consideration is given students who have not recently studied Latin. Prerequisite: Latin 1b or two years of high-school Latin. Mr. Wallace.

10b. VERGIL. II; 4 cr. Selections from the first six books of the *Aeneid.* Special consideration is given students who have not recently studied Latin. Prerequisite: Latin 10a or three years of high-school Latin. Mr. Wallace.

21. GENERAL SURVEY. Yr; 3 cr. (4 cr. for students who wish to include Latin composition.) Selections from Vergil, Lucretius, Catullus and Horace; Cicero's letters and selections from Tacitus, illustrating the social and political life of the Republic and Early Empire. Prerequisite: Latin 10b or four years of high-school Latin. Mr. Winspear.

31. PLINY AND MARTIAL. I; 3 cr. Letters of Pliny and epigrams of Martial, illustrating various phases of Roman life. Prerequisite: Latin 21. Mr. Wallace.

32. SALLUST AND LIVY. II; 3 cr. The *Jugurthine War* of Sallust and selections from Livy, illustrating the national experence of the Roman people. Prerequsite: Latin 21. Mr. Wallace.

35. INTERMEDIATE LATIN COMPOSITION. I; 2 cr. A survey of Latin syntax and idioms. Prerequisite: Latin 21 (6 cr.). Mr. Heironimus.

100. SENIOR THESIS. Yr; 2 cr. Staff.

101. ADVANCED LATIN COMPOSITION. II; 2 cr. Prerequisite: Latin 21 (8 cr.) or Latin 35. Mr. Heironimus.

108. CICERO'S LETTERS. I; 3 cr. The life, times and letters of Cicero. Prerequisite: Latin 32. Given on request. Mr. Wallace.

109. ROMAN DRAMA. II; 3 cr. Comedies of Plautus and Terence; the history of classical drama and its influence. Prerequisite: Latin 32. Given on request. Mr. Wallace.

110. LUCRETIUS. I; 3 cr. The *De Rerum Natura;* its relation to Greek and Roman philosophy. Prerequisite: Latin 32. Offered 1941-42 and in alternate years. Mr. Winspear.

111. VERGIL. I; 3 cr. A review of the works of Vergil, with special attention to the literary art of the *Aeneid.* Prerequisite: Latin 32. Offered 1940-41 and in alternate years. Mr. Wallace.

115. ROMAN BIOGRAPHY. I; 3 cr. Suetonius' *Caesar* and *Augustus,* the *Agricola* of Tacitus, biographies by Nepos, the *Historia Augusta.* The use made of ancient biography in other fields. Prerequisite: Latin 32. Offered 1940-41 and in alternate years. Mr. Heironimus.

118. ROMAN SATIRE. II; 3 cr. Satires of Horace, Persius, and Juvenal. Satire as a literary genre; social conditions at Rome during the Empire. Prerequisite: Latin 32. Offered 1940-41 and in alternate years. Mr. Heironimus.

119. TACITUS. II; 2-3 cr. The principate of Augustus and Tiberius. Prerequisite: Latin 32. Offered 1941-42 and in alternate years. Mr. Wallace.

130. MEDIEVAL LATIN. I; 2 cr. Offered 1941-42 and in alternate years. Mr. Heironimus.

180. DIRECTED READING. (See Greek 180.)

200. INDIVIDUAL RESEARCH. Yr; *cr. Staff.

225. LATIN SOUNDS AND FORMS. II; 2 cr. The history of the Latin language, and its relation to other languages. Offered 1941-42 and in alternate years. Mr. Dillon.

231. LATIN LITERATURE. Yr; 3 cr. A comprehensive survey. Reading from various authors, with a consideration of their antecedents and relationships. In 1940-41, the Early Empire; in 1941-42, the Republic and Late Empire. Mr. Heironimus.

233. LATIN SEMINARY. Yr; 2 cr. Subject for 1940-41: Vergil's *Aeneid,* Book IV. Mr. Wallace. Subject for 1941-42: Lucretius. Mr. Leonard.

TEACHERS' COURSE

THE TEACHING OF LATIN. See School of Education.

COMMERCE

PROFESSORS AURNER, ELWELL, *chairman*, GLAESER, JONES, TAYLOR, TRUMBOWER; ASSOCIATE PROFESSORS FELLOWS, FOX, GIBSON; ASSISTANT PROFESSORS GAUMNITZ, HENSEY; LECTURERS PETERSON, SPOHN; INSTRUCTORS KUBLY, LINS, SCHUCK.

Students in the School of Commerce may offer the following courses in satisfaction of the requirements for a major. Certain courses are required; others are subject to election within groups, and still others may be taken as free electives toward the major. Requirements for the major including group requirements, may be found on page 73.

Unless otherwise noted all of these courses, with the exception of starred courses (*), may be taken for credit by Letters and Science students not in the School of Commerce.

COMMERCE

ACCOUNTING

*8. ELEMENTS OF ACCOUNTING. I, II; 3 cr. Principles of double-entry bookkeeping. Use of the fundamental books; the treatment and proper statement of sole proprietorship, partnership, and corporation accounts. Prerequisite: Sophomore standing. Fee $1.50. Mr. Elwell and staff.

9. INTERMEDIATE ACCOUNTING. I, II; 4 cr. Theories of general financial accounting with problems illustrating their application. Prerequisites: Commerce 8 and Mathematics 7. Fee $2.50. Mr. Elwell and staff.

108. ACCOUNTING PRINCIPLES. Yr; 4 cr. An introductory course in accounting, and income taxes. First semester, theory and principles; second semester, federal and state income tax laws. Prerequisite: Graduate standing, enrollment in the Law School, or consent of instructor. Fee $1.00. Mr. Schuck, Mr. Gibson.

181. ADVANCED ACCOUNTING PROBLEMS. I; 3 cr. Advanced financial accounting for specialized fields. Should be taken in the junior year by accounting majors. Prerequisite: Grade of B in Commerce 9. Fee $1.50. Mr. Gibson, Miss Lins.

182. COST ACCOUNTING. II; 2 cr. Accounting for costs in manufacturing enterprises. Should be taken in the junior year by accounting majors. Prerequisite: Grade of C in Commerce 9. Fee $1.50. Mr. Gibson, Miss Hensey.

183. ACCOUNTS OF CONSOLIDATIONS AND INCOME TAXES. I; 2 cr. Accounts and statements of amalgamations, mergers, and holding companies. Problems based upon federal and Wisconsin income tax laws. Should be taken in the senior year by accounting majors. Prerequisite: Grade of C in Commerce 9 and registration in the School of Commerce. Fee $1.50. Mr. Gibson, Miss Hensey.

184. AUDITING. II; 3 cr. General principles of auditing, including a detailed study of different kinds of audits. Should be taken in the senior year by accounting majors. Prerequisites: Grade of B in Commerce 9, senior standing, and registration in the School of Commerce. Fee $1.50. Mr. Elwell, Miss Lins.

185. ANALYSIS OF FINANCIAL REPORTS. I; 2 cr. Analysis of corporation reports with particular reference to statement structure, meaning of accounts, and ratios. Prerequisite: Commerce 9. Fee $1.00. Mr. Elwell, Miss Lins.

186. ACCOUNTING SYSTEMS. II; 2 cr. General principles of constructive accounting and the designing of systems for various industries. Should be taken in the senior year by accounting majors. Prerequisites: Upper-group status, grade of B in Com-

*In the College of Letters and Science this course may be counted as part of the credits required for graduation only by students in the School of Commerce.

merce 9, and registration in the School of Commerce. Fee $1.00. Mr. Elwell, Miss Lins.

187. GOVERNMENTAL ACCOUNTING. I; 2 cr. Requirements of accounting systems of various governmental units. Special study of budgets and reports. Should be taken in the senior year by accounting majors. Prerequisites: Upper-group status, grade of B in Commerce 9, and registration in the School of Commerce. Fee $1.75. Mr. Elwell, Miss Lins.

188. BUDGETS AND BUDGETARY CONTROL. I; 2 cr. General principles of budgeting. Preparation of budgets; standards of measurement; procedure for budget comparison, revision, coordination; and reports. Prerequisite: Commerce 9. Fee $1.00. Mr. Peterson.

199. PUBLIC UTILITY AND INSTITUTIONAL ACCOUNTING. II; 2 cr. Application of the general principles of accounting to public utilities and to public and private institutions, such as clubs, colleges, foundations, and hospitals. Prerequisite: Commerce 9. Fee $1.00. Mr. Peterson. (Not offered 1940-41)

282. ADVANCED COST ACCOUNTING. II; 2 cr. Recent development in cost procedures with special emphasis on cost analysis, standard and distribution costs, uniform cost systems and trade association accounting. Prerequisite: Commerce 182. Fee $1.50.

283. SEMINARY IN ACCOUNTING. Yr; 2 or 4 cr. Prerequisites: Graduate standing and consent of instructor. Staff.

284. ADVANCED AUDITING. II; 2 cr. Audits of certain specialized businesses, special investigations, reorganization and refinancing problems, Securites and Exchange Commission and State Securities Commission requirements. Prerequisite: Commerce 184. Fee $1.50.

BANKING AND FINANCE

105. MONEY AND BANKING. I, II; 3 cr. Monetary and banking principles and practice; price theories; banking systems and their operation. Prerequisites: Economics 1a. Mr. Morton and staff.

110. INVESTMENTS. I; 3 cr. Analysis of the capital market and its instruments. Prerequisite: Commerce 137. Mr. Taylor.

133. FINANCIAL HISTORY OF THE UNITED STATES. I; 3 cr. Monetary and financial institutions and practices from colonial times to the present. Federal, state and municipal finance. Tariff legislation and its municipal implications. Prerequisite: Commerce 105. Given alternately with Commerce 154. Mr. Morton.

137. CORPORATION FINANCE. I, II; 3 cr. Business units, especially corporate, in present-day enterprise; financial principles applicable to their operation. Fee $2.00. Prerequisite: Economics 1a. Mr. Taylor.

158. LARGE-SCALE ENTERPRISE. II; 3 cr. The business policy of large-scale units. Prerequisite: Commerce 137. Mr. Taylor.

191. THE CREDIT SYSTEM. II; 3 cr. Central banking. Rates of exchange and international equilibrium. Credit policy. Monetary economics. Prerequisite: Commerce 105. Mr. Morton.

205. BANKING AND MONETARY THEORY. Yr; 2 cr. Monetary policy, production, prices, capital formation, and economic activity. Liquidity, solvency, the gold standard, managed currency, stability, inflation and deflation. Prerequisites: Commerce 191 and a course in economic theory. Mr. Morton.

237. SEMINAR IN FINANCE. Yr; 2 cr. Individual research, class reports, and group discussion. Prerequisites: Graduate standing and consent of instructor. Mr. Taylor.

BUSINESS ETHICS

43. Business Ethics. I, II; 2 cr. The rules of fair competition. Standards of fair service. Fair price, fair wage and the justice of the present system of distributing wealth. Prerequisite: Sophomore standing. Fee $.50. Mr. Fox, Mr. Kubly.

COMMERCIAL LAW

109. Legal Aspects of Business Relations. II; 3 cr. Prerequisites: Registration in School of Commerce and senior standing or consent of instructor. Fee $1.00. Mr. Spohn.

FOREIGN TRADE

151. Latin America. I; 3 cr. The economic development and foreign trade of Latin America, with emphasis on the stabler republics. The outlook for foreign trade and investment. Prerequisite: Economics 1a. Mr. Lloyd Jones.

156. International Trade. II; 3 cr. A general course in foreign trade and foreign trade policy with special reference to the United States. Prerequisite: Junior standing. Mr. Lloyd Jones.

251. Seminary in American Foreign Policy, Economic and Political. I, II; 2 cr. Prerequisite: Graduate standing or consent of instructor. Mr. Lloyd Jones.

INDEPENDENT READING AND RESEARCH IN BUSINESS SUBJECTS

180. Reading and Research in Business Subjects. Yr; *cr. The prerequisites for the independent work of this course are senior standing and candidacy for degree with honors in the major. Students electing this work will be expected to pass comprehensive examinations in the field of their major. See section 20, page 60. Staff.

280. Reading and Research in Business Subjects Yr; *cr. Both during regular session and in the inter-session periods individual work suited to the needs of graduate students may be arranged. Prerequisite: Graduate standing. Staff.

MARKETING

*6. English in Business. I, II; 3 cr. Communication in modern economic life. Instruction in organizing executive reports, effective business letters, and other major types of business communication, including market analyses. Prerequisite: Junior standing. Fee $.50. Mr. Aurner.

*13. Marketing Methods. I, II; 3 cr. Principles and practices followed by producer, wholesaler, and retailer in the distribution of goods to the consumer. Prerequisites: Economics 1a and junior standing. Mr. Fellows.

*15. Principles of Advertising. I; 2 cr. An introductory course including an explanation of its economic significance; the various methods of advertising, and the development of copy and layout. Prerequisite: Junior standing or consent of instructor. Mr. Fellows.

113. Problems in Market Analysis. I; 3 cr. The various types of market analyses used by advertising media, manufacturers and distributors. Prerequisites: Commerce 114, upper-group status, and registration in School of Commerce. Fee $1.00. Mr. Fellows.

114. Marketing Management. II; 3 cr. An advanced course in marketing procedure with special emphasis on purpose, development, and scope of personal selling, from the standpoint of the sales executive; market analysis and research. Prerequisite: Commerce 13. Mr. Fellows.

*Technical subject in the School of Commerce; may be taken by other students in the College of Letters and Science only as an extra study, and the credits earned may not be included in the total of 120 required for graduation. Commerce 6, 13, and 15 are open to students in the School of Journalism on the same basis as to Commerce Students.

116. Problems in National Advertising. II; 3 cr. An advanced course dealing with the national distributive program and the consumer. Content emphasizes economic functions, public relations, necessary regulation. Market studies, and creative projects. Prerequisites: Commerce 13 and 15. Mr. Aurner.

170. The Consumer and Merchandising. I; 3 cr. Principles and problems emphasizing position of the consumer; organization; and administration. Buying, planning, control; expense distribution; promotion; personnel administration; operating efficiency; expense reduction through cooperation. Prerequisite: Commerce 13. Mr. Aurner.

198. Modern Problems in Distribution and Public Relations. II; 3 cr. Coordination of factors in distributive enterprise; channeling demand; consumer distributive preferences; modern complexities in public relations and consumer contact; social responsibility and self-discipline in distributive enterprise. Prerequisites: Commerce 170 and upper-group status, and registration in School of Commerce. Mr. Aurner.

213. Seminary, Marketing of Manufactured Goods. Yr; 2 cr. Studies in marketing, sales promotion and retailing activities necessary in the distribution of manufactured commodities. Marketing problems are worked out from current business procedure. Prerequisite: Graduate standing or consent of instructor. Mr. Fellows, Mr. Aurner.

PUBLIC UTILITIES

135. Railway Transportation. I; 2-3 cr. History and development of railway transportation and regulation in the United States. Prerequisite: Economics 1a. Mr. Trumbower.

136. Transportation Problems. II; 2-3 cr. Survey and analysis of present-day problems relating to railway transportation, the operation of highway carriers, development of waterways, and air transport. Prerequisite: Economics 1a. Mr. Trumbower.

142. Public Utilities. I, II; 3 cr. The development of public utilities in the United States. Legal basis of public utility regulation. Development of regulatory agencies. Valuation, depreciation, public ownership. Prerequisite: Economics 1a. Mr. Glaeser.

168. Highway Transportation. I; 3 cr. Economic aspects of highway development, financing of highway construction, supervision of motor vehicle traffic, and regulation of highway common carriers. Prerequisite: Economics 1a. Mr. Trumbower.

189. Railway Rates and Traffic. II; 2-3 cr. Freight rate structure, adjustment rates by the Interstate Commerce Commission, traffic control and management. Prerequisite: Economics 1a. Mr. Trumbower.

195. Public Utility Management. II; 2-3 cr. Survey of management problems; accounting and statistical controls; economics of regulated monopoly price, cost analyses and differential rates; labor problems; standards of operating efficiency. Prerequisite: Commerce 142. Mr. Glaeser.

266. Seminary in Public Utilities. Yr; 2 cr. Research investigations in the field of local public utilities and transportation. Prerequisite: Graduate standing or senior standing with consent of instructor. Mr. Glaeser, Mr. Trumbower.

RISK AND INSURANCE

121. Fire and Casualty Insurance. II; 3 cr. Economic services, contracts, benefits, and premiums in the fields of fire, marine and casualty insurance. Prerequisite: Commerce 139. Mr. Gaumnitz.

138. Life Insurance. I; 3 cr. Mortality tables, premium rates, reserves, policy forms, investments, legal principles, and state supervision in the field of life underwriting. Prerequisite: Commerce 139. Mr. Gaumnitz.

139. Principles of Insurance. I, II; 3 cr. An introductory course designed (1) to precede advanced work in insurance and prerequisite thereto, and (2) to acquaint the non-specialist with the economic and social services of the institution of insurance. Prerequisite: Economics 1a. Mr. Gaumnitz.

140. Problems in Life Insurance. II; 2 cr. An advanced course for the student who has had fundamental training in both the economic and mathematical principles of life insurance. Prerequisites: Commerce 138 and Mathematics 24. Mr. Gaumnitz.

154. Risk and Profit. I; 3 cr. Sources of business risk; the price system, its functions and defects; financial aspects of business cycles; business forecasting; the stock market. Prerequisite: Commerce 105. (Given alternately with Commerce 133.) Offered 1940-41. Mr. Morton.

160. Problems in Property Insurance. I; 2 cr. An advanced course considering in detail practically all forms of insurance other than life insurance. Prerequisite: Commerce 121. Mr. Gaumnitz.

161. Problems in Insurance Office Management. 2 cr. An advanced course concerned with internal and external problems of organization and management. Prerequisite: Commerce 139. Mr. Gaumnitz.

STATISTICS

31. Business Statistics. I, II; 3 cr. Elementary theory and technique of statistical methods, with application to typical production, distribution, accounting and general administrative problems of business organizations. Prerequisites: Economics 1a and registration in the School of Commerce, or consent of instructor. Lab. fee $1.50. Mr. Fox.

132. Statistical Economics. II; 3 cr. Relations between economic series; long-time studies of student's selection. Prerequisites: A course in statistics and upper-group status or graduate standing. Lab. fee $1.50. Mr. Fox.

196. Advanced Statistical Technique. I; 3 cr. Intermediate and advanced methods of analyzing data. Prerequisite: A course in statistics. Lab. fee $1.50. Mr. Fox.

230. Seminary in Statistical Research. Yr; 2 cr. Cooperative research in one or more economic problems, each member of the class concentrating on a selected phase of the common subject. Fee $1.00. Mr. Fox, Mr. Gaumnitz.

See also Mathematics 118, 137 and 238 for courses in the mathematics of statistics.

COMPARATIVE LITERATURE

Professors Agard, Buck, *chairman*, Dillon, Haugen, Ortega, Pochmann, Quintana; Associate Professors Berkowitz, Fulcher, Michell, Rogers; Assistant Professors Rossi, von Grueningen; Instructor Alberson.

Courses in Comparative Literature fall into two general classes: those in which the readings are mainly in English translation, and those in which an easy reading knowledge of one or more foreign literatures is required. Undergraduates majoring in the department must be able to do a portion of this work in at least one language other than English. There is also provision for graduate work in Comparative Literature, as outlined in the bulletins of the Graduate School. None of the courses in this department are open to freshmen.

Major. The major in Comparative Literature is planned for those students who may be interested in the critical appreciation of literature or who may have literary ambitions; it will be found to be elastic enough to suit individual needs. The minimum requirements of the major are 46 credits, including the following:

(a) 16 credits in courses in the Department of Comparative Literature, including course 9 or its equivalent and four or more credits from courses numbered over 100. Course 165 is strongly recommended.

(b) 14 credits in literature (not language or composition) courses in at least two other departments, one of which may be English. Not less than 9 of these credits shall be taken in one foreign language, ancient, or modern. Courses in the language departments below the following numbers are not accepted as part of the major: Latin 16, Greek 7 or 10, English 34, French 21, German 31, Spanish 21, Italian 20, Scandinavian 21. For other literatures consult the chairman of the Department of Comparative Literature.

(c) 12 credits in related courses in at least two of the following departments: art history, philosophy, history.

(d) 4 credits earned by independent work the result of which is shown by a thesis or by work in a seminary. For this requirement there may be substituted a 3 credit course in the department in the hundred-group which requires a term paper. The other one credit must be earned by independent work in the Proseminary 181.

It is further required that the completed work show a degree of continuity; that is to say, the elections will necessarily be in the same or related periods of literary history, or will include the same or similar literary types. The exact grouping of courses for a major will be determined individually for each student.

In any of the possible coordinations of his work the Department of Comparative Literature asks the student to plan his studies so that in his senior year he can do a piece of original work in which the results of this survey of a period or related periods will be manifest. The student if he has the ability may register for such original work. The Proseminary 181 is specially designed for this purpose.

9. World Literature in Translation. Yr; 3 cr. Homer to the 20th century. Mr. Buck and Mrs. Alberson.

67. Drama from Ibsen to Present. Yr; 2 cr. Offered 1941-42 and in alternate years. In translation. Mr. Rogers.

68. Contemporary Novel. Yr; 2 cr. The English, Continental, and American Novel, 1875-1930, in translation. Offered 1940-41 and in alternate years. Mr. Fulcher.

In the following courses, for majors one foreign language is necessary; for others special arrangements may be made.

100. Thesis. Yr; 2 cr. Students register with the consent of instructor and chairman of department. Mr. Scott.

101. Medieval Epic, Romance and Fable. I; 3 cr. A study of these as the literature of entertainment and a reflection of the life and interests of the people. Epic materials as found in the Anglo-Saxon, Norse, French, German, Spanish and Latin and their development in romance. Offered 1940-41 and in alternate years. Mrs. Alberson.

102. Renaissance Epic and Romance. II; 3 cr. Epic and related forms, as the romance and pastoral, their development in Latin. Italian, Portuguese and French and their culmination in Ariosto, Tasso, Spenser and Milton. Offered 1940-41 and in alternate years. Mrs. Alberson.

103. Renaissance Thought. II; 3 cr. Not offered 1940-41. Mr. Quintana.

127. Contemporary Poetry. (See English 127.)

143. Cervantes and the Spanish Golden Age. Yr; 3 cr. Life and works of Cervantes; sources; historical developments in sixteenth and seventeenth century Spain relating to literature; influence of Cervantes in foreign literatures. Offered 1940-41 and in alternate years. Sr. Ortega.

165. Literary Criticism. Yr; 3 cr. The search for a critical theory and a study of literary types. Readings in representative critics. Mr. Buck and Mr. Scott.

170. Literary Type: Tragedy. I; 3 cr. A critical study. At least one foreign language required. Offered 1941-42 and in alternate years. Mr. Buck.

171. Comedy. II; 3 cr. Critical study. Prerequisite: At least one foreign language. Offered 1941-42 and in alternate years. Mr. Buck.

173. Literary Type: Biography. Yr; 3 cr. The history of the development of biography; followed by a comparative study of the varieties of modern biographical writing. Offered 1941-42 and in alternate years. Mrs. Alberson.

176. The Romantic Movement in France, Germany, and England. II; 3 cr. From Rousseau to Goethe and Chateaubriand. Ability to read German or French necessary. Offered 1940-41 and in alternate years. Mr. Buck.

177. Renaissance Satire. I; 3 cr. Not offered 1940-41. Mr. Quintana.

178. The Contemporary Scene. I; 3 cr. A study of the literary movements in Europe and America since the Great War. Offered 1940-41 and in alternate years. Ability to read at least one foreign language required.

180. Special Readings. Yr; *cr. Individual studies in selected fields for exceptional students under the direction of the instructor. Students must consult the chairman before registering. See section 20, page 60.

181. Proseminary. Yr; *cr. Individual studies for seniors. Prerequisite: Consent of instructor. Mrs. Alberson.

184. German-American Literary Relations. (See English 184.)

201. Seminary, Dante in American Criticism. Yr; 2-3 cr. Mr. Buck.

The following courses, 41-133, dealing with the literatures of Greece, Rome, Ireland, Italy, Spain, Germany, Scandinavia or France in translation are for students not having the foreign language and who wish to acquaint themselves with the best in their literatures. As such they are recommended most highly. They do not carry credit toward a major in Comparative Literature.

41. Greek Life and Literature. (See General Classics 41.)

42. Roman Life and Literature. (See General Classics 42.)

50. French Masterpieces in Translation. Yr; 2 cr. Prerequisite: Sophomore standing. No language required. Mr. Michell.

51. Classical Mythology. (See General Classics 51.)

53. Italian Masterpieces in Translation. Yr; 2 cr. Lectures, class discussions, assigned readings. The first semester is devoted to Dante, Petrarch, and Boccaccio; the second semester begins with the Renaissance authors and ends with Pirandello. No language prerequisite. Mr. Russo.

55. Spanish and Portuguese Masterpieces in Translation. Yr; 2 cr. The significant traits of Hispanic literature, and their relationship to other literatures, from the origin to the present time, illustrated with selected representative masterpieces. Lectures, class discussions, and supplementary readings. No language prerequisite. Mr. Berkowitz.

71. Literature of the Vikings. (See Scandinavian Languages 71).

75. German Classics in Translation. Yr; 2 cr. Selected masterpieces of German literature, taken up in English. Lectures, assigned readings, discussions, and topics. First semester, the *Nibelungenlied* to Schiller; second semester, Goethe to modern times. Offered 1940-41 and in alternate years. Mr. von Grueningen.

77. Norwegian Literature from Renaissance to Realism. (See Scandinavian Languages 77.)

133. Studies in Irish Civilization. Yr; 3 cr. A survey of Irish civilization in translation. Mr. Dillon.

COMPARATIVE PHILOLOGY

Professors Dillon, *chairman*, Hanley, Haugen, Heffner, Herriott, Leonard, Twaddell; Assistant Professor Kasten; Lecturer Zawacki.

INDO-EUROPEAN

101. Introduction to Comparative Indo-European Linguistics. I; 2 cr. Mr. Twaddell.

120. Anglo-Saxon. (See English 120.)

121. Middle English. (See English 121.)

123. History of the English Language. (See English 123.)

131. Elementary Old Irish. (See Irish 131.)

140. Elementary Sanskrit. I; 2 cr. Mr. Dillon.

141. Advanced Sanskrit. II; 2 cr. Mr. Dillon.

150. History of the German Language. (See German 150.)

151. Elementary Middle High German. (See German 151.)

154. Gothic. (See German 154.)

155. Old High German. (See German 155.)

158. Old Saxon. (See German 158.)

163. Old Norse. (See Scandinavian Languages 163.)

164. Introduction to Scandinavian Languages. (See Scandinavian Languages 164.)

170. Introduction to Slavonic Philology: Old Church Slavonic. II; 2 cr. Mr. Zawacki.

171. Russian. Yr; 2 cr. Mr. Zawacki.

185. Introduction to Phonetics. (See English 185.)

201. Philological Proseminary. (See Irish 201.)

205. Introduction to Medieval Welsh. (See Irish 205.)

208. Introduction to the Comparative Grammar of the Celtic Languages. (See Irish 208.)

225. Latin Sounds and Forms. (See Latin 225.)

226. Greek Sounds and Forms. (See Greek 226.)

227. History of the English Language. (See English 227.)

250. Seminary: Comparative Indo-European Linguistics. Yr; 2 cr. The work of the seminary varies from year to year according to the needs of the students. Mr. Dillon.

261. Historical Grammar of the German Language. (See German 261.)

ROMANCE PHILOLOGY

141. Spanish Historical Grammar. Yr; 2 cr. An introduction to Spanish philology, phonology, morphology, and syntax. Prerequisite: Three years of college Spanish. Offered 1941-42 and in alternate years. Mr. Herriott.

210. Philological Seminary: Old Spanish. Yr; 2 cr. Offered 1940-41 and in alternate years. Mr. Kasten.

For other courses in linguistics see French 141, 240, 244; Italian 171; Spanish 141, 210.

DRAWING

Drawing 1, 2 and 3, offered by the Department of Drawing and Descriptive Geometry in the College of Engineering, are accepted as regular Letters and Science subjects and may be taken for credit by students in the College of Letters and Science without special permission of their dean.

ECONOMICS

PROFESSOR FRIEDMAN (Visiting), GLEASER, GROVES, HIBBARD, JONES, KIEKHOFER, LESCOHIER, MCNALL, MORTON, PERLMAN, TAYLOR, TRUMBOWER, WEHRWEIN, WITTE, *chairman;* ASSOCIATE PROFESSORS ANDERSON, BAKKEN, FOX, FROKER, MORTENSON, SCHAARS; ASSISTANT PROFESSORS EARLEY, EBLING, GAUMNITZ, MITCHELL, PARSONS; LECTURERS BRANDEIS, BRIGGS; INSTRUCTOR BRIDGMAN.

MAJOR

For a major in economics thirty credits are required, including the following: eight credits in Economics 1a and 1b, three credits in Economics 30, and nineteen additional credits. These additional credits shall be selected in conference with the major adviser. Four of the nineteen additional credits may be met by the writing of a thesis if a student is invited to do so by the faculty in charge of the field of concentration. Students must earn as many grade-points as credits in the work of the major in order to be eligible for graduation.

Theses may be written in any one of the fields designated in Fields II-VIII as described on subsequent pages. A minimum of two related courses in the field selected is required as a background for the thesis. Students not writing theses must, however, offer three courses in any one of the fields of specialization, II-VIII, into which the work of the department is divided.

APPLICATION OF ECONOMICS TO SPECIAL COURSES

SCHOOL OF COMMERCE. The importance of professionally trained men and women for business was recognized in the establishment of the Course in Commerce in 1900. The Course has now become the School of Commerce with work extending over three years, the junior, senior, and first graduate years. See pages 73-77 of this announcement for details. Professor F. H. Elwell is the director.

AGRICULTURAL ECONOMICS. The courses in agricultural economics are intended to give the student a knowledge of the economic principles which relate to the production and marketing of farm products, the utilization of land, and the economic condition of the agricultural classes. For details see pages 116-117 of this announcement. Professor A. Hobson is in charge.

INDUSTRIAL RELATIONS. The Department of Economics has arranged a sequence of courses preparing students for positions as employment managers with business concerns, or for positions as factory inspectors, statisticians, special investigators with state and federal departments concerned with industrial labor, and employment agents in the state and federal employment service. This statement does not imply a promise that such employment can be obtained for students who take the course. A list of recommended courses can be obtained in the office of the Department of Economics or from Professor Lescohier who is in charge.

MUNICIPAL FINANCE AND ADMINISTRATION. A major in Municipal Finance and Administration has been established in the Division of the Social Sciences, and designed for those preparing for positions in municipal and county offices in which specific knowledge of governmental organization, finance and accounting is necessary. This statement does not imply a promise that such employment can be obtained for students who

take this major. Full details concerning required and recommended courses can be secured from Professor Elwell who is in charge. (See page 75.)

TRAINING IN ECONOMIC STATISTICS. A sequence of courses in economics, commerce, agricultural economics, sociology, and mathematics has been arranged for those who desire to prepare for statistical positions both during their undergraduate and graduate work. A list of required and suggested courses may be had by applying to Professor E. A. Gaumnitz who is in charge, or the office of the Department of Economics.

COURSES OF INSTRUCTION IN ECONOMICS

In addition to the courses described below credit toward an economics major is given for the following courses: Commerce 9, 108, 114, 116, 170, 181, 182, 185, 199, 213. The description of the listed courses will be found under the offerings of the School of Commerce.

I. GENERAL ECONOMICS AND ECONOMIC THEORY

1a. GENERAL ECONOMICS. I, II; 4 cr. Fundamental economic principles and the problems of modern economic society; production; the modern exchange system; value and price, wages, interest. Prerequisite: Sophomore standing. Mr. Kiekhofer and staff.

1b. GENERAL ECONOMICS. I, II; 4 cr. Rent, profits, business cycles, consumption, public finance, economic policies and politics. Prerequisite: Economics 1a. Mr. Kiekhofer and staff.

100. SENIOR THESIS. Yr; 2 cr.

150. ECONOMIC THEORY. I, II; 3 cr. Analysis of the problems of pricing, production, employment and distribution under competitive and non-competitive conditions. Some social implications. Prerequisite: Graduate standing or senior standing with major in economics or commerce. Mr. Earley.

173. ECONOMICS OF CONSUMPTION. II; 3 cr. Relations between consumption and saving and social income and its fluctuations. Efforts to improve position of consumers. Prerequisite: Economics 1b or consent of instructor. Mr. Earley.

175. BUSINESS CYCLE THEORIES. II; 3 cr. Critical analysis of explanations of crises and depressions. Prerequisites: Senior standing and major in economics or commerce. Fee $1.00. Mr. Lescohier.

197. MATHEMATICAL ECONOMICS. I; 3 cr. Prerequisites: Senior standing or consent of instructor. Mr. Friedman.

201. DEVELOPMENT OF ECONOMICS. Yr; 2 cr. A critical survey of economic thought from the mercantilists to recent writers. Prerequisites: Economics 1b or equivalent and graduate standing. Mr. Earley.

202. HISTORICAL AND INSTITUTIONAL ECONOMISTS. I; 3 cr. Prerequisites: Economics 1b and graduate standing. (Given alternately with Economics 218.) Mr. Glaeser.

218. INSTITUTIONAL ECONOMICS. I; 3 cr. Historical development of the institutional organization of economic society. Special attention given to bearing of constitutional law upon the changing structure. (Given alternately with Economics 202.) Mr. Glaeser.

250. SEMINARY IN ECONOMIC THEORY. Yr; 2 cr. Critical discussion of debatable topics in the field of economic theory, particularly value and distribution, together with the presentation of reports on recent or contemporary theorists. Prerequisites: Graduate standing and consent of instructor. Mr. Kiekhofer.

280. READING AND RESEARCH IN ECONOMICS. Yr; *cr. Both during the regular session and in the inter-session periods individual work suited to the needs of graduate students may be arranged. Prerequisite: Advanced graduate standing. Staff.

See also Economics 205, listed under IV, Finance, and Economics 221, listed under III, Agricultural Economics.

II. ECONOMIC HISTORY AND INSTITUTIONS

19. Economic History of the United States. II; 2-3 cr. Development of agriculture, industry, commerce, and transportation from colonial times to the present. Problems raised by economic evolution in the United States. Prerequisite: Economics 1a. Miss Brandeis.

43. Business Ethics. I, II; 2 cr. The rules of fair competition. Standards of fair service. Fair price, fair wage, and the justice of the present system of distributing wealth. Prerequisite: Sophomore standing. Mr. Fox, Mr. Kubly.

119. Evolution of Industry. I; 3 cr. Guilds, mercantile and industrial capitalism. Prerequisites: Economics 1a and junior standing. Mr. Perlman.

146. Government and Business. II; 3-4 cr. General survey of governmental activities affecting business with emphasis upon aspects not dealt with in other courses. Prerequisite: Economics 1b. Fee $1.50. Mr. Witte.

158. Large-Scale Enterprise. II; 3 cr. The business policy of large-scale units. Prerequisite: Economics 137 or consent of instructor. Mr. Taylor.

176. Business Cycles. I; 3 cr. Prerequisite: Econ. 1b. Mr. Friedman.

220. Governmental Economic Problems. Yr; 2 cr. Current economic problems confronting government and industries, especially of Wisconsin. Prerequisite: Graduate standing or consent of instructor. Mr. Witte.

258. Imperfect Competition and the Law. I; 2 cr. Mr. Bunn, Mr. Hurst and Mr. Earley.

III. AGRICULTURAL ECONOMICS

117. Outlines of Land Economics. I; 3 cr. Economic principles underlying the utilization and conservation of land or natural resources. Prerequisite: Economics 1b. Mr. Wehrwein.

126. International Trade in Agricultural Products. I; 3 cr. Theories of foreign trade; foreign exchange; history and analysis of agricultural exports and imports; governmental aids and restrictions to trade. Prerequisite: Economics 1a. Mr. Schaars.

127. Cooperation. I, II; 3 cr. Analysis of marketing organizations, methods and theory underlying producer and consumer cooperative enterprises. Consideration of economic, legal and social aspects of cooperation. Prerequisite: A course in marketing or junior standing or consent of instructor. Mr. Bakken.

128. Marketing Agricultural Products. I; 3 cr. Principles and practices of agricultural marketing; market prices and costs; case studies. Prerequisite: Economics 1a. Mr. Schaars.

129. Cooperative Management Problems. I; 2 cr. Consideration of the business structure of cooperative associations; problems involving organization, membership relations, financing, trade and sales practices, and administrative policies. Prerequisite: Economics 127 or consent of instructor. Mr. Hobson, Mr. Froker.

152. Farmer Movements. I; 3 cr. History of farmers' efforts to improve their status through organizations designed to control markets and influence legislation. Prerequisite: Economics 1a or consent of instructor. Mr. Hobson.

155. Prices of Agricultural Products. II; 3 cr. An analysis and interpretation of the factors affecting the prices of agricultural products, together with a study of price movements, trends, cycles and minor fluctuations. Prerequisite: Agr. Econ. 1 or Economics 1b. Mr. Mortenson.

179. Urban Land Economics. II; 3 cr. Urbanization, location, and structure of cities, urban land utilization, home ownership and tenancy, housing and credit, zoning, city and regional planning. Prerequisite: Agr. Econ. 1 or Economics 1b.

200. RESEARCH. Yr; *cr. Cooperation and marketing, Mr. Hobson, Mr. Bakken, Mr. Froker, and Mr. Schaars. Farm surveys and financial accounts in their relation to farm management, Mr. McNall and Mr. Mitchell. Organized farmer movements, Mr. Hobson. Taxation and farm credit, Mr. Parsons. Land economics and land problems, Mr. Wehrwein. Crop and livestock estimating and agricultural data, Mr. Anderson, Mr. Ebling. Agricultural prices and statistics, Mr. Mortenson. International trade and agricultural policies, Mr. Hobson and Mr. Schaars.

221. LAND INCOME. I; 3 cr. Economics of land utilization, theories of rent, principles of land valuation and taxation. Mr. Wehrwein.

226. SEMINARY IN LAND PROBLEMS. Yr; 2 cr. Land tenure and utilization in the principal countries. Prerequisite: Economics 117, 229 or concurrent registration. Mr. Wehrwein.

228. SEMINARY IN THEORY OF MARKETS AND MARKETING. II; 2 cr. A study of the historical development of markets; of modern market institutions such as auctions, clearing houses, exchanges, and boards of trade. Offered 1940-41 and in alternate years. Mr. Bakken.

229. SEMINARY IN ADVANCED AGRICULTURAL ECONOMICS. I; 3 cr. The field of agricultural economics with respect to its origin and the main issues. Staff.

252. SEMINARY IN AGRICULTURAL POLICIES. II; 2 cr. An analysis of governmental aids to agriculture in the United States and abroad. Mr. Hobson.

255. SEMINARY IN PRICE ANALYSIS. II; 3 cr. The application of statistical and other methods involved in analyzing agricultural prices and related problems. Prerequisite: Economics 130 or equivalent. Offered 1941-42 and in alternate years. Mr. Mortenson.

IV. FINANCE

103. FISCAL POLICY. I; 3-4 cr. Social Security taxes; revenue other than taxes; federal-state-local fiscal relationships; public expenditures; public debts; comparative tax systems. Prerequisite: Economics 124 or consent of instructor. Mr. Groves.

105. MONEY AND BANKING. I, II; 3 cr. Monetary and banking principles and practice; price theories; banking systems and their operation. Prerequisite: Economics 1a. Mr. Morton and staff.

110. INVESTMENTS. I; 3 cr. Analysis of the capital market and its instruments. Prerequisite: Economics 137. Mr. Taylor.

124. TAXATION. I, II; 3 cr. Specific taxes which make up the national, state, and local systems with special emphasis upon the practical social problems involved. Prerequisite: Economics 1b. Mr. Groves.

133. FINANCIAL HISTORY OF THE UNITED STATES. I; 3 cr. Monetary and financial institutions and practices from colonial times to the present. Federal, state and municipal finance. Tariff legislation and its financial implications. Prerequisite: Junior standing. (Given alternately with Economics 154.) Mr. Morton.

137. CORPORATION FINANCE. I, II; 3 cr. Business units, especially corporate, in present-day enterprise; financial principles applicable to their operation. Prerequisites: First semester: Econ. 1a and Commerce 9; Second semester: Econ. 1a. Fee $2.00. Mr. Taylor.

151. LATIN AMERICA. I; 3 cr. The economic development and foreign trade of Latin America, with emphasis on the stabler republics. The outlook for increased foreign trade and investment. Prerequisite: Economics 1a or junior standing. Mr. Lloyd Jones.

153. International Finance. II; 2 cr. Economic and financial principles, underlying international affairs, including monetary, exchange, trade, capital and debt relationships; international price levels and policies; influence of politics on international finance. Prerequisite: Economics 1b. Mr. Kiekhofer.

154. Risk and Profit. I; 3 cr. Sources of business risk; the price system, its functions and defects; financial aspects of business cycles; business forecasting; the stock market. Prerequisite: Economics 1b or 105. (Given alternately with Economics 133.) Offered 1940-41. Mr. Morton.

156. International Trade. II; 3 cr. A general course in foreign trade and foreign trade policy with special reference to the United States. Prerequisite: Economics 1a or junior standing. Mr. Lloyd Jones.

191. The Credit System. II; 3 cr. Central banking. Rates of exchange and international equilibrium. Credit policy. Monetary economics. Prerequisite: Economics 105. Mr. Morton.

193. Foreign Banking Systems. 3 cr. Its structure and operations. Comparisons with the American financial system. Prerequisite: Economics 105. Not offered 1940-41. Mr. Earley.

205. Banking and Monetary Theory. Yr; 2 cr. Monetary policy, production, prices, capital formation, and economic activity. Liquidity, solvency, the gold standard, managed currency, stability, inflation and deflation. Prerequisites: Economics 191 and a course in economic theory. Mr. Morton.

224. Seminary in Public Finance. Yr; 2 cr. Alternating annually: 1. Legal problems in public finance. 2. Comparative tax systems (1940-41). 3. Tax literature and tax theory. Prerequisite: Economics 124 or consent of instructor. Mr. Groves.

237. Seminary in Finance. Yr; 2 cr. Comprehensive and intensive consideration of selected problems of current and permanent import in financial administration. Individual research, class reports and group discussion. Prerequisite: Consent of instructor. Mr. Taylor.

251. Seminary in American Foreign Policy, Economic and Political. Yr; 2 cr. Prerequisite: Graduate standing or consent of instructor. Mr. Lloyd Jones.

253. Seminary in International Finance. Such leading topics as capital movements, debts and investments, fixed versus stable exchange rates, trade and finance as affected by managed currencies, etc. Prerequisites: Training in finance and consent of instructor. Open on same terms to senior majors with upper-group status. Mr. Kiekhofer.

V. INSURANCE

121. Fire and Casualty Insurance. II; 2 cr. Economic services, contracts, benefits, and premiums in the fields of fire and casualty insurance. Prerequisite: Economics 139. Mr. Gaumnitz.

138. Life Insurance. I; 3 cr. Mortality tables, premium rates, reserves, policy forms, investments, legal principles, and state supervision in life underwriting. Prerequisite: Economics 139. Mr. Gaumnitz.

139. Principles of Insurance. I, II; 3 cr. Designed (1) to precede advanced work in insurance and prerequisite thereto, and (2) to acquaint the non-specialist with the economic and social services of the institution of insurance. Prerequisite: Economics 1a. Mr. Gaumnitz.

140. Problems in Life Insurance. II; 2 cr. For the student who has had fundamental training in both the economic and mathematical principles of life insurance. Prerequisites: Economics 138 and Mathematics 24. Mr. Gaumnitz.

160. Problems in Property Insurance. I; 2 cr. Considers in detail practically all forms of insurance other than life insurance. Prerequisite: Economics 121. Mr. Gaumnitz.

161. PROBLEMS IN INSURANCE OFFICE MANAGEMENT. 2 cr. Internal and external problems of organization and management. Governmental control, taxation, and broad legal aspects. Prerequisite: Economics 139. Mr. Gaumnitz.

See also Economics 120, Social Insurance, listed under VI, LABOR, and Economics 154, Risk and Profit, listed under IV, FINANCE.

VI. LABOR

120. SOCIAL INSURANCE. I; 3-4 cr. (2 credits only for those who have had Econ. 123.) Deals with all aspects of social insurance, including old age pensions, health insurance, unemployment insurance. Prerequisite: Economics 1b. Fee $1.50. Mr. Witte.

122. LABOR PROBLEMS. I; 3 cr. A comparison of the typical psychologies of the business group and of the labor groups. Types of unionism. The structure and policies of unionism. "Welfare capitalism." Prerequisites: Economics 1a and junior standing. Lab. fee $1.00. Mr. Perlman.

123. LABOR LEGISLATION. I; 3 cr. (2 credits only for those who have had Econ. 120.) Protective legislation dealing with wages, hours, child labor, old age benefits, accident and unemployment compensation. Legal status of trade unions. Prerequisite: Economics 1b or consent of instructor. Miss Brandeis.

131. WAGES AND PRICES. II; 3 cr. Analysis of facts and of forces governing wages. Prerequisites: Senior standing, economics or commerce major. Fee $1.00. Mr. Lescohier.

144. CAPITALISM AND SOCIALISM. II; 3 cr. Capitalism, unionism, socialism, fascism, and individualistic anti-capitalism, each viewed under the headings of conditions, theories, and movements. Prerequisites: Economics 1a and senior standing. Mr. Perlman.

145. AMERICAN LABOR HISTORY. II; 3 cr. American labor movement; an historical experiment with the temper of the American community; political and legal institutions; and the psychology of labor. Prerequisites: Economics 1a and junior standing. Mr. Perlman.

149. GOVERNMENT AND LABOR. Yr; 3 cr. Devoted, in the first semester, to industrial relations and labor law; and in the second semester to social insurance and general labor legislation. Either semester may be taken separately. Prerequisite: First semester: Economics 122 or 123 or 145 or 171; second semester: Economics 120 or 123, or 174. Fee $1.00. Mr. Witte.

171. PERSONNEL MANAGEMENT. I, II; 3 cr. Prerequisite: Economics 1a or a major in industrial education or engineering. Mr. Lescohier.

174. THE LABOR MARKET. I; 3 cr. An analysis of problems centering around employment and unemployment. Prerequisite: Economics 1a. Mr. Lescohier.

222. SEMINARY IN LABOR AND INDUSTRY. Yr; 2 cr. Research seminary in the problems of organized labor in industry. Mr. Perlman.

249. SEMINARY IN LABOR LAW. II; 1 cr. Mr. Feinsinger, Mr. Rice, Mr. Perlman, Mr. Witte and Mr. Garrison.

274. SEMINARY IN BUSINESS CYCLES AND UNEMPLOYMENT. Yr; 2 cr. Mr. Lescohier.

VII. PUBLIC UTILITIES

135. RAILWAY TRANSPORTATION. I; 2-3 cr. History and development of railway transportation and regulation in the United States. Prerequisite: Economics 1a. Mr. Trumbower.

136. TRANSPORTATION PROBLEMS. II; 3 cr. Survey and analysis of present-day problems relating to railway transportation, the operation of highway carriers, develop-

ment of waterways, and air transport. Prerequisite: Economics 1a. Mr. Trumbower.

142. PUBLIC UTILITIES. I, II; 3 cr. Development of public utilities in the United States. Legal basis of public utility regulation. Development of regulatory agencies. Valuation, depreciation. Public ownership. Prerequisite: Economics 1a. Mr. Glaeser.

168. HIGHWAY TRANSPORTATION. I; 3 cr. Economic aspects of highway development, financing of highway construction, supervision of motor vehicle traffic, and regulation of highway common carriers. Prerequisite: Economics 1a. Mr. Trumbower.

189. RAILWAY RATES AND TRAFFIC. II; 2-3 cr. Freight rate structure, adjustment of rates by the Interstate Commerce Commission, traffic control and management. Prerequisite: Economics 1a. Mr. Trumbower.

195. PUBLIC UTILITY MANAGEMENT. II; 3 cr. Management problems; accounting and statistical controls; economics of regulated monopoly price, cost analysis and differential rates; labor problems; standards of operating efficiency. Prerequisite: Economics 142. Fee $1.00. Mr. Glaeser.

266. SEMINARY IN PUBLIC UTILITIES. Yr; 2 cr. Research in the field of local public utilities and transportation. Prerequisite: Graduate standing or senior standing with consent of instructor. Mr. Glaeser, Mr. Trumbower.

VIII. STATISTICS

30. ECONOMIC STATISTICS. I, II; 3 cr. Sources of statistical data, tabulation, charting, averages, dispersion, sampling and probability, index numbers, trends, seasonal variation, economic cycles, correlation. Prerequisites: Economics 1a and major in economics or consent of instructor. Fee $1.50. Mr. Gaumnitz.

130. STATISTICAL METHODS. I; 3 cr. Elementary statistics for graduate students. Prerequisite: Graduate standing. Fee $1.50. Mr. Gaumnitz.

132. STATISTICAL ECONOMICS. II; 3 cr. Relations between economic series; long time studies of student's selection. Prerequisites: A course in statistics and upper-group status or graduate standing. Fee $1.50. Mr. Fox.

196. ADVANCED STATISTICAL TECHNIQUE. I; 3 cr. Intermediate and advanced methods of analyzing data. Prerequisite: A course in statistics. Fee $1.50. Mr. Fox.

230. SEMINARY IN STATISTICAL RESEARCH. Yr; 2 cr. Cooperative research in one or more economic problems, each member of the class concentrating on a selected phase of the common subject. Fee $1.00. Mr. Fox, Mr. Gaumnitz.

232. SEMINARY IN WEALTH AND INCOME. Yr; 2 cr. Mr. Friedman.

See also Mathematics 118, 135, 137 and 238 for courses in the mathematics of statistics.

EDUCATION

Education 106, 108, 119, 120, and 123 are accepted as regular Letters and Science courses. For description of these courses see the School of Education section of the Announcements and also the semester time-tables.

ENGLISH

PROFESSORS CLARK, HANLEY, HUGHES, *chairman*, LEONARD, POCHMANN, QUINTANA, ROE, TAYLOR, WHITE; LECTURER GLICKSMAN; ASSOCIATE PROFESSORS ECCLES, FULCHER, THORNBURY, WALLERSTEIN; ASSISTANT PROFESSORS DORAN, GRAY, THOMAS, TROWBRIDGE, WALES; INSTRUCTORS BRADFORD, BROWN, CASSIDY, CHEW, ERDMAN, KNIPP, RUTLEDGE, WOOD.

MAJOR. A minimum of 34 credits including (a) freshman English; (b) one of the following: 30, 32, 33, 40 (both 30 and 33 may not be taken for credit); (c) one, and only one of the following: 37, 136, 137; (d) two of the following, one of which must be either Chaucer or Milton: 31, 57, 129, 131, 156, 157, 160, 161, 162; (e) not more than two of the following (one will suffice): 134, 135 (or 132), 141, 169, 174; (f) a thesis or its equivalent. Candidates for the English major must have maintained a 1.5 average in their courses in that subject during the freshman and sophomore years.

The thesis, written in the senior year, is required of all students whose grades in English courses taken at the University of Wisconsin average B. Students of a lower grade must substitute four credits in courses of the one-hundred group, not including courses taken in fulfillment of requirements (c) and (d) above. No senior transfer may write a thesis unless his record at the institution from which he transfers convinces the chairman of the department that he has the requisite capacity.

Students intending to choose English as their major study are urged to complete the introductory course (30, 32, 33, or 40) not later than the close of the sophomore year. Prospective majors should have done better than average work in their preliminary courses in English and in foreign languages. Students entering with advanced standing are required to earn 15 credits in English in advanced courses in residence at the University of Wisconsin.

HONORS. Students reading for honors in English will enter upon their work in the first semester of their junior year, under the direction of tutors. They will be expected to devote much of the following summer to assigned general reading and will continue the work through the senior year. Prerequisite: An average of 2.5 grade-poinnts per credit for the first four semesters and the written recommendation of three sophomore instructors. For further information consult Professor Quintana.

TEACHING MAJOR AND MINOR. See School of Education.

1a. FRESHMAN ENGLISH. I, II; 3 cr. Required of freshmen in all colleges who prove their fitness for the course in the opening tests. Instruction is offered either in completely independent sections meeting thrice weekly, or in sections meeting twice weekly, with an additional lecture hour once a week. Mr. Taylor and staff.

1b. FRESHMAN ENGLISH. I, II; 3 cr. Continuation of English 1a. Required of all freshmen excepting those who receive a grade of A in English 1a. On the completion of this course, a provisional pass mark is given; if subsequently a student is reported deficient or careless in English composition, he may be required to take additional work in that subject. Mr. Taylor and staff.

2. INTERMEDIATE COMPOSITION. I, II; 3 cr. Prerequisite: English 1b. Open to freshmen exempted from freshman English. 2a, exposition; 2b, description and narration. Miss Wales and staff.

3. INTERMEDIATE COMPOSITION. Yr; 2 or 3 cr. Primarily for students exempted from English 1, but open to others by permission of the instructor. Limited enrollment. Mr. Fulcher.

5. ADVANCED COMPOSITION. Yr; 2 or 3 cr. Prerequisite: Consent of instructor. Miss White.

8. ADVANCED COMPOSITION. Yr; 2 or 3 cr. Prerequisite: Junior standing. Miss Wales.

INTRODUCTORY LITERATURE COURSES

Students may fulfill the B.A. requirements of 4-6 credits in literature by taking one of the courses hereinafter described—30, 32, 33, 40. Whichever of these courses is once entered upon must be continued for two semesters; that is, a student may not shift from one course to another. No advanced course in English literature is open to students who have not taken one of these introductory courses.

30. SURVEY OF ENGLISH LITERATURE. Yr; 3 cr. An appreciative study of representative work by the most outstanding English writers, treated in the light of cultural history. Open to freshmen exempted from English 1. Miss White and staff.

32. CONTEMPORARY LITERATURE. Yr; 3 cr. An approach to literature through significant and representative modern prose and poetry. Open to freshmen exempted from English 1. Enrollment limited to 125. Mr. Fulcher.

33. INTRODUCTION TO ENGLISH LITERATURE. Yr; 3 cr. A non-chronological course in English literature, with emphasis upon some ten great writers. Open to freshmen exempted from English 1. Mr. Quintana and staff.

40. AMERICAN LITERATURE. Yr; 3 cr. An introductory survey of the major spokesmen of Americanism. (First semester's work repeated in second semester and second semester's work given during the first semester.) Open to freshmen exempted from English 1. Mr. Clark, Mr. Pochmann.

ENGLISH LANGUAGE AND LITERATURE

37. SHAKESPEAREAN DRAMA. Yr; 3 cr. Open to juniors. A broad course for undergraduates. Miss White.

57. MILTON. II; 3 cr. All of Milton's English poetry is read, and a good deal of his prose. Not offered 1940-41. Mr. Quintana.

68. THE NOVEL IN THE MODERN WORLD. Does not give credit in English. (See Comparative Literature 68.)

100. SENIOR THESIS. Yr; 2 cr. Students must register with the secretary of the department for individual theses.

104. HARDY AND MEREDITH. I; 2 cr. Not offered 1940-41. Miss Thornbury.

105. BRITISH DRAMA 1660-1825. II; 3 cr. (Except in 1940-41 this course will be given in the first semester). Mr. Trowbridge.

106. BRITISH DRAMA 1825 TO THE PRESENT. II; 3 cr. Not offered 1940-41. Miss Thornbury.

112. HAWTHORNE AND MARK TWAIN. I; 3 cr. Mr. Pochmann.

114. EMERSON AND POE. II; 3 cr. Not offered 1940-41. Mr. Pochmann.

115. BURNS. I; 3 cr. Not offered 1940-41. Mr. Leonard.

116. ENGLISH LITERARY CRITICISM OF THE ROMANTIC ERA. I; 3 cr. Mr Roe.

117. ENGLISH LITERARY CRITICISM OF THE VICTORIAN ERA. II; 3 cr. Not offered 1940-41. Mr. Roe.

120. ANGLO-SAXON. I; 3 cr. The language and literature of England before the Norman Conquest. Mr. Hanley.

121. MIDDLE ENGLISH. II; 3 cr. The language and literature of England from the Norman Conquest to Chaucer. Mr. Hanley.

122. BEOWULF. II; 3 cr. Mr. Leonard.

123. HISTORY OF THE ENGLISH LANGUAGE. II; 3 cr. Standards of usage and of pronunciation; development of the English vocabulary. Should be taken in the junior year by candidates for the teachers' certificate. Mr. Hanley.

124. ENGLISH LANGUAGE AND LITERATURE FOR TEACHERS. I; 3 cr. Open only to majors in the School of Education, who may take either English 123 or 124. Mr. Pooley.

125. CONTEMPORARIES AND IMMEDIATE SUCCESSORS OF CHAUCER. I; 3 cr. Not offered 1940-41. Mr. Leonard.

127. CONTEMPORARY POETRY. II; 3 cr. Mr. Fulcher.

129. SWIFT AND HIS CONTEMPORARIES. I; 3 cr. Three-fourths of the course is devoted to a study of Swift; for purposes of comparison, Defoe and Pope are briefly considered. Mr. Quintana.

131. CHAUCER. I; 3 cr. *The Canterbury Tales, Troilus and Criseyde.* Study of changing literary, linguistic, and intellectual traditions. Mr. Hanley.

132. VICTORIAN PROSE. II; 3 cr. The age is studied through the chief prose works of the chief writers. Courses 132 and 135 may not both be taken for credit. Mr. Quintana.

133. SHELLEY AND KEATS. II; 3 cr. Not offered 1940-41. Mr. Thomas.

134. THE ROMANTIC MOVEMENT. I; 3 cr. Mr. Roe.

135. THE VICTORIAN ERA. II; 3 cr. Not offered 1940-41. Mr. Roe.

136. ELIZABETHAN DRAMA INCLUDING SHAKESPEARE. Yr; 3 cr. Twenty-three plays by Shakespeare and fifteen of the best plays by his contemporaries. Not offered 1940-41. Mr. Eccles.

137. SHAKESPEARE. Yr; 3 cr. About half the plays of Shakespeare are read, six of them being studied in detail. Prerequisite: Senior standing or consent of instructor. Miss Doran.

138. ENGLISH PROSE STYLE. Yr; 2 cr. Offered 1940-41 and in alternate years. Mr. Taylor.

139. THE ENGLISH NOVEL. Yr; 3 cr. Richardson to Meredith. Offered 1941-42 and in alternate years. Mr. Fulcher.

140. SPOKESMEN OF AMERICAN IDEALS. I; 3 cr. Mr. Clark.

141. TENNYSON AND BROWNING. II; 3 cr. Mr. Thomas.

143. FAMILIAR ESSAY. I; 2 cr. Offered 1941-42 and in alternate years. Mr. Taylor.

147. ENGLISH ESSAYISTS. II; 2 cr. Offered 1941-42 and in alternate years. Mr. Taylor.

148. LITERARY ASPECTS OF THE ENGLISH BIBLE. I; 3 cr. Epic stories, poetry, etc., in historical and Oriental background; studied from standpoint of general human interest. Miss Wales.

150. AMERICAN FICTION. II; 3 cr. Includes both novels and short stories, with some emphasis on the West. Mr. Clark.

154. CARLYLE AND RUSKIN. I; 3 cr. Not offered 1940-41. Mr. Roe.

155. ARNOLD AND PATER. II; 3 cr. Not offered 1940-41. Mr. Roe.

156. EARLY SEVENTEENTH CENTURY. II; 3 cr. Miss Wallerstein.

157. MILTON. II; 3 cr. Mr. Quintana.

160. THE SIXTEENTH CENTURY. II; 3 cr. Mr. Hughes.

161. LITERATURE 1660-1745. I; 3 cr. Miss Wallerstein.

162. LITERATURE 1745-1798. I; 3 cr. Mr. Quintana.

163. OLD NORSE. (See Scandinavian Languages 163.)

166. AMERICAN LITERARY CRITICISM. II; 3 cr. Mr. Pochmann.

169. MAJOR AMERICAN POETS. I; 3 cr. Mr. Clark.

170. CONTEMPORARY AMERICAN LITERATURE, 1914 TO THE PRESENT. II; 3 cr. A survey of American life reflected in the modern novel, short story, critical essay, biography, and drama. Mr. Clark.

172. STUDIES IN POETRY. I; 3 cr. Mr. Thomas.

173. THE RISE OF A NATIONAL LITERATURE IN AMERICA, 1775-1836. II; 3 cr. Mr. Clark.

174. MAJOR AMERICAN PROSE WRITERS. II; 3 cr. Mr. Pochmann.

179. SOCIAL IDEALS IN ENGLISH LETTERS. II; 3 cr. Not offered 1940-41. Miss Thornbury.

180. READING FOR HONORS. 4 cr. Prerequisites: Upper-group standing in major and consent of instructor. See section 20, page 60. See Mr. Quintana.

184. GERMAN-AMERICAN LITERARY RELATIONS. II; 2 cr. Not offered 1940-41. Mr. Pochmann.

185. INTRODUCTION TO PHONETICS. I; 3 cr. Study of the production of speech sounds with some practice in the use of phonetic transcription. Mr. Hanley.

186. ADVANCED PHONETICS. II; 3 cr. Special studies in phonetics adjusted to the tastes and interests of students electing the course. Students who elect courses 185 and 186 as preparation for later advanced work in the American language will be assigned 1 cr. of extra work each semester. Mr. Hanley.

190. THE QUEST FOR SOCIAL JUSTICE IN AMERICAN LITERATURE, 1880-1914. I; 3 cr. From Mark Twain's *Connecticut Yankee* to Dreiser's *Titan*. Not offered 1940-41. Mr. Pochmann.

191. THE LITERATURE OF COLONIAL AMERICA, 1607-1775. I; 3 cr. Mr. Pochmann.

200. RESEARCH IN ENGLISH. Yr; cr. to be arranged. Mr. Hughes and staff.

202. MAIN PROBLEMS OF SCHOLARSHIP IN NON-DRAMATIC LITERATURE, 1600-1660. II; 3 cr. Miss Wallerstein.

209. MILTON. I; 3 cr. Not offered 1940-41. Mr. Hughes.

210. SEVENTEENTH CENTURY. Yr; 3 cr. Not offered 1940-41. Miss Wallerstein, Miss White.

215. BURNS: PROBLEMS OF DIALECT AND SOCIAL AND LITERARY BACKGROUND. I; 3 cr. Not offered 1940-41. Mr. Leonard.

227. HISTORY OF THE ENGLISH LANGUAGE. Yr; 2 cr. Mr. Leonard.

232. SEMINARY. Yr; 2 cr. 1940-41, Chaucer. Mr. Leonard.

233. INTRODUCTORY SEMINARY. Yr; 2 cr. Not offered 1940-41.

235. INTRODUCTORY SEMINARY: ENGLISH LANGUAGE IN AMERICA. Yr; 2 cr. Studies using the Linguistic Atlas of the United States and the large collection of historical material available at the University of Wisconsin. Mr. Hanley.

240. SEMINARY. I; 3 cr. 1940-41, Studies in Emerson's poetry. Mr. Leonard.

244. SEMINARY. Yr; 2 cr. 1940-41, Intellectual background of Shakespeare's age. Miss White.

248. BIBLIOGRAPHY AND METHODS OF RESEARCH. I; 3 cr. A course designed to train graduate students in the processes of literary investigation. Mr. Hughes.

TEACHERS' COURSE

THE TEACHING OF ENGLISH. See School of Education.

FINE ARTS

(See Art History, page 95)

FORESTRY AND FOREST PRODUCTS

These courses are given in cooperation with the United States Forest Products Laboratory, as described under that heading, to which students interested in the utilization of wood, chemistry of forest products, etc., are referred for further information. The four courses here listed may be elected by juniors and seniors in Letters and Science with the consent of the Dean.

1. GENERAL FORESTRY. I; 2 cr. Outdoor study of native trees; forest conditions, policy, history, conservation, and utilization. Mr. Tiemann.

101. PROPERTIES OF WOOD. I; 2 cr. Physical, mechanical, and chemical properties of wood; structure of wood fibres; seasoning, gluing, finishing, and pulping characteristics; relation of defects and fungi to wood properties. Prerequisite: Forestry 1 or equivalent. Offered 1941-42 and in alternate years. Mr. Koehler, et al.

102. WOOD TECHNOLOGY. II; 2 cr. Mr. Tiemann.

119. FUNGUS DETERIORATION OF FOREST PRODUCTS. I; 2 cr. Offered 1941-42 and in alternate years. Miss Richards.

FRENCH AND ITALIAN

PROFESSORS CHEYDLEUR, ROGERS, SCHLATTER, SMITH, *chairman*, ZDANOWICZ; ASSOCIATE PROFESSORS GILLEN, MICHELL, RUSSO; ASSISTANT PROFESSORS BANDY, HARRIS, LEVEQUE, MILLIGAN, ROSSI; INSTRUCTORS BOTTKE, EZBAN, GREENLEAF, LUZENSKA, MERCIER, PALMERI, SULLIVAN, TUCKER, VIRTANEN

The elementary courses in French and Italian have been planned for those who have begun the language in high school, as well as for those who take it up for the first time in college. One unit (year) of high-school work is counted the equivalent of one semester of college work, but all entering freshmen and transfers are assigned to courses on the basis of placement tests given during Freshman Period.

See also page 47 for Attainment Tests. Lists of suggested readings in preparation for the proficiency test may be obtained from the department office.

French 13 and 15 and Italian 15 are second-year practice courses intended to supplement the training in French 10 and Italian 10, which emphasize the acquiring of reading knowledge. They may be taken only in conjunction with some other course in the language, except by special permission. French 25, 124, 127, and Italian 116 afford more advanced training in writing and speaking.

French 21 is a third-year course which is prerequisite to advanced courses in French literature. Italian 21 is similarly designed to be introductory to other courses in Italian literature, although students receiving a grade of A in fourth-semester Italian should go directly into the advanced courses in literature.

Students are advised to consult the foreign-language requirements for the B.A. degree, page 61.

MAJOR. In French, 28 credits in advance of 1b, including thesis or substitute. In Italian, 24 credits in advance of 1b. Students may take 4-6 credits in literature courses numbered above 100 in lieu of writing a thesis.

By faculty requirement, students choosing a foreign-language major must present at least eight credits in a second foreign language.

A departmental certificate of proficiency in oral French, required of teaching majors, may also be obtained by others on the basis of a special examination or demonstration of the necessary command of the spoken language at the French House.

Those who expect to continue work for advanced degrees should note that knowledge of another foreign language is required for the M.A., and that for satisfactory work in Romance philology some knowledge of Latin is indispensable. Both Latin and German, as well as another Romance language, are required for the Ph.D. and should be acquired as early as possible.

TEACHING MAJOR AND MINOR. See School of Education.

FRENCH HOUSE. *La Maison Française,* intended especially for training in speaking French, is maintained by the department. It is open to women students for room and board, and both men and women rooming outside may take their meals there. Women of French birth reside in the house to aid in conversation and preside at the tables where French only is spoken. Prospective teachers of French, and all others desirous of acquiring practice in the spoken language, are urged to room or board at the French House. With approval of the departmental faculty, a part of the prescribed training in conversation, necessary for the teachers' certificate, may be done in this house. Re-

quests for further information and application for rooms should be directed to the Chairman, Department of French and Italian, and sent well in advance, both for summer session and regular year.

ITALIAN TABLE. An Italian table is conducted several times a week at *La Maison Française*. Inquiries should be addressed to Professor Russo.

CLUBS. French and Italian Clubs at the University afford students opportunities to hear talks about the country whose language they are studying and to converse in the language in which they are interested. Modern and classical plays are presented in public from time to time.

FRENCH

LANGUAGE

1a. FIRST-SEMESTER FRENCH. I, II; 4 cr. For students who have had no French. Mr. Milligan and staff.

1b. SECOND-SEMESTER FRENCH. I, II; 4 cr. Prerequisite: French 1a or one year of high-school French. Based on an examination, or a previous record of B or above, the upper-group students are assigned to special sections. Mr. Milligan and staff.

3. READING COURSE FOR GRADUATE STUDENTS. I, II; no credit. Mr. Gillen.

10a. THIRD-SEMESTER FRENCH. I, II; 3 cr. Largely a reading course. Prerequisite: French 1b or two years of high-school French. Upper-group students are assigned to special sections. Mr. Milligan and staff.

10b. FOURTH-SEMESTER FRENCH. I, II; 3 cr. Largely a reading course. Prerequisite: French 10a or three years of high-school French. Upper-group students are assigned to special sections. Mr. Milligan and staff

13. RAPID READING. Yr; 1 cr. Emphasis on sight translation; contemporary reading. To be taken only with French 10a or 10b; not open to students with two years of college French (except by special permission), or to those who have passed the Attainment Examination. Does not count toward teaching major or minor. Mr. Milligan and staff.

15. ELEMENTARY COMPOSITION AND CONVERSATION. Yr; 2 cr. Oral work with written exercises. Supplementary course to be taken with French 10a and 10b. Not open to students who have had the equivalent of two years of college French, except by special permission. Mr. Milligan and staff.

25. INTERMEDIATE COMPOSITION AND CONVERSATION. Yr; 2 cr. Prerequisite: Grade of at least C in 10b or in 15b. M. Lévêque and staff.

48. FRANCE OF TODAY. Yr; 2 cr. Reading and discussion of books, newspapers, and periodicals. Open only to students in journalism and commerce, except by special permission. Prerequisites: French 10b and sophomore standing. Mr. Harris.

80. SUPERVISED INDIVIDUAL READING. Yr; 2 cr. Of third-year grade. For upper-group majors in other departments who wish to study in their major field, using French texts. The work must be planned with their major professor and have the approval of the Chairman of the French Department and of the Dean.

124. COMPOSITION AND CONVERSATION. Yr; 2 cr. Prerequisite: French 25 or grade of A or B in 10b and 15b. Conducted in French. Mlle Mercier, Mlle Pauly.

127. ADVANCED COMPOSITION AND CONVERSATION. Yr; 2 cr. Prerequisite: French 25 with grade of A, or French 124. Conducted in French. Mlle Mercier.

141. HISTORY OF THE FRENCH LANGUAGE. Yr; 2 cr. Lectures and assigned reading. Prerequisite: French 21. Mr. Schlatter.

190. FRENCH PHONETICS. I, II; 2 cr. Theory of French sounds, with practice in pronunciation. Required of teaching majors and minors. Prerequisite: Three years of college French. Mr. Bottke.

191. FRENCH DICTION. II; 2 cr. Practical interpretative reading. Study of stress, rhythm, articulation, voice, intonation. Prerequisite: French 190 or consent of instructor. Offered 1941-42 and in alternate years. Mlle Mercier.

227. GRADUATE COURSE IN COMPOSITION. Yr; 1 cr. Open to students who have had French 127 or equivalent. Conducted in French. M. Lévêque.

240. OLD FRENCH. Yr; 2 cr. An introductory course; phonology and grammar. Lectures and reading. Mr. Harris.

244. OLD PROVENÇAL. Yr; 2 cr. Offered 1940-41 and every third year. Mr. Harris.

273. ROMANCE PHILOLOGY. Yr; 2 cr. Offered 1941-42 and every third year. Mr. Harris.

TEACHERS' COURSE

THE TEACHING OF FRENCH. See School of Education.

LITERATURE

Six credits in French 21, or equivalent, are prerequisite to all other courses in French literature.

21a. ELEMENTARY SURVEY (19th century). I, II; 3 cr. Translation, assigned reading, study of literary aspects of work read, and literary history. Prerequisite: French 10b or four years of high-school French. Mr. Michell and staff.

21b. ELEMENTARY SURVEY (17th and 18th centuries). I, II; 3 cr. Prerequisite: French 21a. Mr. Michell and staff.

50. FRENCH MASTERPIECES IN TRANSLATION. Does not give credit in French. (See Comparative Literature 50.)

100. THESIS. Yr; 2 cr. Students must register with the Chairman of the department for individual theses. Mr. Smith and staff.

122. FRENCH LITERATURE OF THE NINETEENTH CENTURY. Yr; 3 cr. Mr. Milligan.

123. MODERN FRENCH DRAMA. Yr; 3 cr. From the Romantic period to the present. Mr. Smith.

125. CONTEMPORARY FRENCH LITERATURE. Yr; 3 cr. Novel and drama. From 1870 until today. This course should be preceded by some general course on a century or a genre. Mr. Rogers.

126. EXPLICATION DE TEXTES. I; 2 cr. Reading of texts, prose and poetry, with a careful study of the contents, author, background, etc. Offered 1940-41 and in alternate years. Conducted in French. Mr. Bandy.

131. GENERAL SURVEY OF FRENCH LITERATURE. Yr; 3 cr. Mr. Cheydleur.

132. FRENCH LITERATURE OF THE EIGHTEENTH CENTURY. Yr; 2 cr. Especially Voltaire, Diderot, Rousseau. Mr. Michell.

133. VICTOR HUGO. II; 2 cr. Offered 1940-41 and every third year. Mr. Michell.

134. BALZAC. II; 2 cr. Offered 1941-42 and every third year. Mr. Michell.

136. FRENCH NOVEL FROM THE SEVENTEENTH CENTURY TO THE TWENTIETH. Yr; 3 cr. Offered 1940-41 and in alternate years. Mr. Cheydleur.

137. MOLIÈRE. I; 2 cr. Offered 1941-42 and in alternate years. Mr. Zdanowicz.

139. FRENCH LITERATURE OF THE SEVENTEENTH CENTURY. Yr; 3 cr. Conducted in French. M. Lévêque.

145. FRENCH LITERATURE OF THE SIXTEENTH CENTURY. Yr; 2 cr. Offered 1940-41 and in alternate years. Mr. Zdanowicz.

150. FRENCH CIVILIZATION. Yr; 1-2 cr. The background of history, art, and institutions as an aid to the understanding of the principal movements of French literature. Lectures, readings and reports. Conducted in French. M. Lévêque.

155. BIOGRAPHY AND LETTERS. II; 3 cr. Study of biographies of the great figures in French literature, art, science, and politics, and of the letter-writers who reflect the general culture of France. Mr. Gillen.

157. FRENCH LYRIC POETRY. I; 3 cr. Mr. Gillen.

163. FRENCH-SPANISH LITERARY RELATIONSHIPS. Yr; 2 cr. Omitted 1940-41.

180. ADVANCED INDEPENDENT READING. For upper-group majors complying with conditions of section 20, page 60. Consult Chairman of Department.

200. INDIVIDUAL RESEARCH IN FRENCH. Yr.; *cr. Superior graduate students, with special permission, may do individual research, under supervision, in some definite field. Staff, on consultation with Chairman of Department.

245. SEMINARY, CRITICAL STUDY OF OLD FRENCH TEXT. Yr; 2 cr. Critical study in establishing an Old French text made from manuscript copies, with a brief introduction to Romance paleography of the 12th to the 14th centuries. Open to graduate students in any department interested in text editing, who have the proper preparation in French. Offered 1939-40 and every fourth year. Mr. Smith.

250. THE RENAISSANCE IN FRANCE. II; 2 cr. Development of the Renaissance spirit and its manifestation in France, with special study of some representative 16th-century author. Offered 1941-42 and in alternate years. Mr. Zdanowicz.

252. SEMINARY, ANCIENT FRENCH DRAMA. Yr; 2 cr. Medieval French drama from its beginnings, with special attention to the 14th-century Miracle Plays and to the 15th-century Farces. Offered 1941-42 and every third year. Mr. Smith.

253. SEMINARY, FRENCH LITERATURE. Yr; 2 cr. The growth of Classicism and its general spirit, with special study of some representative author each semester. Offered 1940-41 and in alternate years. Mr. Zdanowicz.

254. SEMINARY, FRENCH LITERATURE. Yr; 2 cr. Realism and Naturalism in the French drama. Offered 1940-41 and in alternate years. Mr. Smith.

255. SEMINARY, TWENTIETH-CENTURY FRENCH LITERATURE. Yr; 2 cr. Representative authors of the 20th century. Offered 1939-40 and every third year. Mr. Cheydleur.

256. SEMINARY, ROMANTICISM. I, 2 cr., 18th-Century Romanticism, Mr. Mitchell; II, 2 cr., 19th-Century Romanticism, Mr. Bandy. Offered 1941-42 and in alternate years.

ITALIAN

LANGUAGE

1a. FIRST-SEMESTER ITALIAN. I, II; 4 cr. For students who have not studied Italian. Mr. Russo and staff.

1b. SECOND-SEMESTER ITALIAN. I, II; 4 cr. Prerequisite: Italian 1a or one year of high-school Italian. Mr. Russo and staff.

9. BEGINNING ITALIAN FOR GRADUATES. I, II; two hours per week; no credit. A very rapid course aiming at a reading knowledge. Mr. Corradini.

10a. THIRD-SEMESTER ITALIAN. I; 3 cr. Prerequisite: Italian 1b or two years of high-school Italian. Mr. Rossi, Mr. Bottke.

10b. FOURTH-SEMESTER ITALIAN. II; 3 cr. Prerequisite: Italian 10a or three years of high-school Italian. Mr. Rossi, Mr. Crane.

15. ELEMENTARY COMPOSITION AND CONVERSATION. Yr; 2 cr. Grammer review with oral and written exercises. Supplementary course to be taken with Italian 10a and 10b or with the consent of Mr. Russo. Mr. Crane.

49. Italy of Today. Yr; 2 cr. Lectures on the present social, economic, cultural, and political conditions in Italy; language study based on reading of current periodicals. Mr. Crane.

80. Supervised Individual Reading. Yr; 2 cr. Of third-year grade. For upper-group majors in other departments who wish to study in their major field, using Italian texts. The work must be planned with their major professor and have the approval of the Dean and of the Professor of Italian.

116. Advanced Composition and Conversation. Yr; 2 cr. Prerequisite: Italian 15 with grade of B. Mr. Russo.

LITERATURE

Two years of Italian in college, or the equivalent, are prerequisite to advanced courses in Italian, except by special permission of the instructor.

21. Elementary Survey. Yr; 3 cr. Translation, assigned reading, study of literary aspects of work read, and literary history. Mr. Rossi.

53. Italian Masterpieces in Translation. Does not give credit in Italian. (See Comparative Literature 53). Mr. Rossi.

100. Senior Thesis. Yr; 2 cr. Mr. Russo.

102. Modern Italian Literature. Yr; 2 cr. From the unification of Italy to present days, especially Carducci, D'Annunzio, Pascoli, Fogazzaro, Verga, and Pirandello. Conducted in Italian. Offered 1941-42. Mr. Russo.

122. Risorgimento. Yr; 3 cr. Authors who inspired the struggle for the rebirth of Italy, with special stress on Alfieri, Monti, Foscolo, Manzoni, Leopardi and De Sanctis. Offered 1941-42 and in alternate years. Mr. Rossi.

123. Italian Drama. Yr; 3 cr. The development of Italian drama from its origin to the present. Offered 1941-42 and every fourth year. Mr. Russo.

131. General Survey of Italian Literature. Yr; 3 cr. Lectures, reports and reading of representative works from the thirteenth century to the present. Offered 1941-42 and every fourth year. Mr. Rossi.

136. Italian Novel. Yr; 3 cr. The short story and the novel from the *Novellino* to Pirandello. Offered 1939-40 and every fourth year. Mr. Rossi.

141. Italian Literature of the Seventeenth Century. I; 2 cr. Spanish influence, *marinismo,* new thought; Bruno, Campanella, Tassoni. Conducted in Italian. Offered 1942-43 and every fourth year. Mr. Russo.

142. Italian Literature of the Eighteenth Century. II; 2 cr. Arcadia and Rinnovamento; Goldoni, Parini, and Alfieri. Conducted in Italian. Offered 1942-43 and every fourth year. Mr. Russo.

152. Italian Renaissance. Yr; 3 cr. From Petrarch to Tasso. Humanism and classicism; particular emphasis on the poems of chivalry, Machiavelli and Guicciardini. Offered 1943-44 and every fourth year. Mr. Russo.

160. Dante's Divina Commedia. Yr; 3 cr. Lectures on Dante's life and times, reading of the *Divine Comedy,* comment, discussion, reports. Offered 1940-41 and in alternate years. Mr. Russo.

161. Trecento. Yr; 2 cr. The literature of the fourteenth century, excluding the *Divine Comedy.* Conducted in Italian. Offered 1943-44 and every fourth year. Mr. Russo.

200. Individual Research. Yr; *cr. Graduate students with special permission may do research in some approved field. Mr. Russo.

PHILOLOGY

171. Introduction to Italian Philology. I; 2 cr. Derivation of the Italian language from medieval Latin; elementary phonology and morphology. Offered 1940-41 and every fourth year. Mr. Russo.

172. Early Italian Writers. II; 2 cr. The Italian literature before Dante. Offered 1940-41 and every fourth year. Mr. Russo.

GEOGRAPHY

Professors Finch, *chairman*, Trewartha; Associate Professor Hartshorne; Assistant Professor Durand; Instructor Sterling.

The distinctive field of geography is the study of the earth's regions, and the individual elements, both natural and cultural, of which they are composed. It is obvious from the kinds of materials with which the geographer deals that his science is neither exclusively social nor natural, but belongs to both. It is inherently dual in nature. In the outline of courses which follows, two principal subdivisions have heretofore been recognized: (1) those courses which are primarily physical geography, and (2) those in which the cultural or human aspects are emphasized. Physical geography, as it is being developed at Wisconsin, is a study of those features of the natural earth (particularly climate and landforms, but also native vegetation, soils and mineral resources) which significantly affect the potentialities of the earth's regions for human use. Such a study of the natural environment provides a solid foundation, not only for cultural or human geography, but for all the other social sciences as well.

The introductory courses in geography are 1-2, 5-6, and 17. All of these with the exception of 6, which is cultural geography, emphasize the natural environment. For a general survey of the field of geography any of these courses should be followed by one or more of the regional courses 101, 102, 103, 104, 107, 110, and 111, and by one or more of the topical courses, 106, 127 and 128. Courses 1-2 and 17 are the only ones in geography which completely or partially satisfy the natural science requirements for the bachelor's degree. Only those courses listed under the head of cultural geography may be taken to meet the requirements in social science. Geography 5-6, an introductory course in general geography, both natural (Geography 5) and cultural (Geography 6), is intended primarily for those expecting to enter the School of Commerce or for social science majors desiring a general background of world geography without laboratory training. Course 17 is the counterpart of course 5, with laboratory training added, and may be substituted for 5 in the 5-6 combination. Students who have had any one of the three introductory courses in physical geography (1-2, 5 or 17) may not elect either of the other two, but are eligible for Geography 6, which is human or cultural geography. Students who have had either Geography 3 or 6 may not elect the other one.

Major. An undergraduate major requires a minimum of 30 credits. Courses 1-2, 5-6, or 17 will normally be followed by a selection of the regional and topical courses together with such special courses (126, 131, 132, and 135) as the student may elect. Majors are expected to elect Geography 140 in the junior or senior years. Senior theses are written only by upper-group students and at the request of the department.

Hispanic Studies and American Institutions as Fields of Concentration. Students interested in these major fields should consult page 51.

PHYSICAL GEOGRAPHY (NATURAL ENVIRONMENT)

1-2. Physical Geography: The Natural Environment. Yr; 5 cr. A general survey of the characteristics of the major types of land surfaces, climates, soils, and resources that comprise the natural environment of man. Open to freshmen.

Students who have taken Geology 1 may receive but eight credits for the work in Geography 1-2 because of certain duplications in subject matter. Not open to students who have had courses 5 or 17. Lab. fee $1.50.* Mr. Durand and staff.

5. Regional World Geography: Physical Aspects. I; 3 cr. Analysis and world distribution of the features of the natural earth, such as climate, surface configuration, native vegetation, soils and mineral resources. Geography 5-6 together form a year's unit of work covering both the natural and the cultural aspects of geography. See introductory paragraph. Not open to students who have had courses 1-2, or 17. Open to freshmen. Mr. Finch.

17. Survey of Physical Geography: Man's Natural Environment. I; 4 cr. Identical and concurrent with course 5 except that it has two hours of laboratory a week, grants four instead of three credits, and can be counted for natural science credit. May be substituted for course 5 by those who desire science credit. Not open to students who have had courses 1-2, or 5. Lab. fee $1.00*. Mr. Finch.

140. Climatography. I; 3 cr. The elements of climate; weather types and storms; classification of climates and the distribution of climatic types over the earth. Prerequisite: Junior standing. Not offered 1940-41. Mr. Finch.

141. Climatography of the Continents. II; 2 cr. Descriptive and explanatory analysis of the climatic characteristics which prevail in the various parts of each of the continents. Prerequisite: Geog. 140 or consent of instructor. Offered 1940-41 and in alternate years. Mr. Trewartha.

Note: Supplementary courses in certain aspects of physical geography offered in other departments are: Geology 109, 130, 143 and 230; Meteorology 103 and 106; and Soils 125. Upon the recommendation of the geography staff, certain of the above courses may be counted toward a major in the field of geography. Students in the Ph.B. curriculum needing 20 credits in science and mathematics, who have accumulated 10 credits in Geography 1-2 and 8 in mathematics, may complete the requirement by taking Geology 130 for 5 credits or by taking an additional mathematics course.

CULTURAL (HUMAN) GEOGRAPHY

Included within the division of social sciences

3. Economic Geography. I; 3 cr. World survey of the geography of commercial production. Land uses, extractive, and manufacturing industries are studied in their natural and cultural associations. Prerequisite: Sophomore standing. Mr. Hartshorne.

6. Regional World Geography: Cultural Aspects. I, II; 3 cr. Regional survey of man's use of and development in, various parts of the earth. Special emphasis upon those countries and regions of greatest material development. Open to freshman. Mr. Trewartha.

101. Geography of Europe (Not including Mediterranean countries). II; 3 cr. Includes the Russian lands of Asia. Prerequisite: Sophomore standing. Mr. Durand.

102. Geography of South America. II; 3 cr. Prerequisite: Sophomore standing. Mr. Sterling.

103. Geography of North America. I; 3 cr. A study of regional differentiation, physical and cultural, in Anglo-America. Prerequisite: Sophomore standing. Mr. Finch.

104. Geography of Wisconsin. I; 2 cr. Prerequisite: Sophomore standing. Mr. Durand.

106. Agricultural Geography. II; 3 cr. A study of the world distribution and environmental associations of selected crops and forms of agricultural industry. Prerequisite: Sophomore standing. Mr. Finch.

*Individual field expenses in Geography 2 about $1.00 additional per semester; in Geography 17 about $1.00 additional.

107. GEOGRAPHY OF THE MEDITERRANEAN REGION. I; 3 cr. A study of the lands bordering the Mediterranean Sea—southern Europe, western Asia, and northern Africa. Prerequisite: Sophomore standing. Mr. Hartshorne.

110. GEOGRAPHY OF THE FAR EAST. I; 3 cr. Resources and land-use characteristics of the Far Eastern countries. Emphasis upon Japan and China. Prerequisite: Sophomore standing. Mr. Trewartha.

111. GEOGRAPHY OF MIDDLE AMERICA. I; 2 cr. Includes Mexico, Central America, and the West Indies. Prerequisite: Sophomore standing. Mr. Sterling.

127. INDUSTRIAL GEOGRAPHY OF THE UNITED STATES. II; 3 cr. Prerequisite: Sophomore standing. Mr. Durand.

128. CONSERVATION OF NATURAL RESOURCES. I, II; 3 cr. Waters, soil, forests, wildlife, scenery, and minerals: value and regional distribution, misuse and depletion, current efforts to insure an adequate supply for the future. Prerequisite: Junior standing. Mr. Sterling.

150. POLITICAL GEOGRAPHY: WORLD SURVEY. II; 3 cr. The areal characteristics and territorial problems of states, including internal regional relations, border disputes, and colonial areas. Emphasis on Europe and North America. Prerequisite: Sophomore standing. Mr. Hartshorne.

NOTE: A supplementary course in cultural geography dealing with distribution of mineral resources is offered in the Department of Geology. (See Geology 150.)

SPECIAL COURSES IN GEOGRAPHIC TECHNIQUE AND METHODS

100. SENIOR THESIS. Yr; 2 cr. Staff.

126. CARTOGRAPHY AND GRAPHICS. II; 3 cr. Laboratory practice in the construction of map projections, topographic, statistical and other representations on maps and in drawing maps for reproduction in print. Prerequisite: Sophomore standing. Mr. Finch.

131. SUMMER FIELD COURSE IN GEOGRAPHY AND PHYSIOGRAPHY. 3 to 6 cr. During or following the summer session. Enrollment only by previous arrangement with the instructor. Not offered 1940-41. Mr. Durand.

135. GEOGRAPHIC FIELD MAPPING AND FIELD TECHNIQUE. II; 3 cr. Prerequisite: Geography major or consent of instructor. Mr. Trewartha.

180. SPECIAL WORK IN GEOGRAPHY. Yr; 1-3 cr. Open only to upper-group majors in department by consent of instructor. See section 20, page 60. Staff.

200. GRADUATE RESEARCH AND THESIS. Yr; *cr. Staff.

232. SEMINARY IN GEOGRAPHY. Yr; 2 cr. Prerequisite: Graduate standing or consent of instructor. Staff.

280. SPECIAL WORK IN GEOGRAPHY. Yr. Graduate standing. Staff.

ADVANCED COURSES IN REGIONAL GEOGRAPHY

The following course numbers are given to intensive studies of particular phases or regions of the geography of the continents, more advanced than those undertaken in the regional courses of the 100-group. They are open to graduate students, and, by permission, to advanced undergraduate majors in the department, and to qualified majors in allied fields. *Not more than one of the courses in this group will be offered in any one semester.*

201. NORTHWESTERN EUROPE. Not offered 1940-41. Mr. Durand.

202. LATIN AMERICA. Not offered 1940-41. Mr. Sterling.

203. NORTH AMERICA. Not offered 1940-41. Mr. Finch.

207. THE MEDITERRANEAN REGION. Not offered 1940-41. Mr. Hartshorne.

210. THE FAR EAST. Not offered 1941-42. Mr. Trewartha.

TEACHERS' COURSE

A teachers' course in geography is not offered, but majors in geography should elect either Educational Methods 84 (The Teaching of History and the Social Studies) or Educational Methods 97 (The Teaching of Science).

GEOLOGY

PROFESSORS EMMONS, LEITH, MCKINSTRY, TWENHOFEL *chairman*; WINCHELL; ASSISTANT PROFESSORS NEWELL, THWAITES, TYLER.

MAJOR. A minimum of 30 credits, including thesis, is required. For students wishing a survey of the field for general educational purposes, courses 1, 6, 7, 8 and 17 are suggested. Course 1, General geology, is the principal introductory course. Short courses in geology and mineralogy (7 and 17) are offered without prerequisites to students not intending to take further work in these subjects. Students who take these short courses will be allowed to enter advanced courses only by special arrangement. Field work is given in connection with Geology 1, 8, 11, 17, 112, 114, 125, 130, 133, and 143.

GENERAL GEOLOGY

1. GENERAL GEOLOGY. Yr; 5 cr. Students who have taken Geography 1 may receive but three credits for the work of the first semester. First semester, physical geology; second semester, earth history and elementary paleontology. Lab. fee $1.50 per semester. Lecture, lab. and field trips. Mr. Twenhofel, Mr. Newell.

9. ENGINEERING GEOLOGY. Yr; 3 cr. Elementary geology for students in engineering. First semester required of juniors in civil engineering; both semesters required of students in mining engineering. Lab. fee $1.50 per semester. Mr. Tyler, Mr. McKinstry.

11. MAPPING. II; 3 cr. Application of plane table and other instruments to geologic and topographic mapping. Not open to freshmen. Lab. fee $3.00. Mr. Thwaites.

17. SURVEY OF GEOLOGY: THE EARTH'S STORY. II; 3 cr. Open to all students, excepting those who have taken Geology 1, or 9, or Geography 1. Lab. fee $1.00. Field trips with supplementary laboratory work. Mr. Newell.

100. SENIOR THESIS. Yr; 2 cr.

125. LAKE SUPERIOR FIELD TRIP. II; 1 cr. In the semester following course 117, a ten-day trip is taken to the Lake Superior district, offering a survey of the region. Shorter trips of one or two days are offered at irregular intervals. Mr. Tyler, Mr. McKinstry.

135. HISTORY OF GEOLOGY. I; 1 cr. Prerequisites: Geology 1 or 9, or Geography 1; senior standing. Offered 1941-42 and in alternate years. Mr. Twenhofel.

180. ADVANCED INDEPENDENT READING. See section 20, p. 60. Prerequisite: Consent of instructor. Staff.

200. RESEARCH. Yr; *cr. Staff.

253. SEMINAR. Yr; 1 cr. Staff.

STRUCTURAL, METAMORPHIC AND ECONOMIC GEOLOGY

52. ELEMENTARY ECONOMIC GEOLOGY. I; 3 cr. A study of the manner of occurrence, origin and uses of the metallic ores and the non-metallic mineral products. Prerequisites: Geology 1, 2 or 9, and 6 or 7. Mr. McKinstry.

114. STRUCTURAL GEOLOGY. I; lect 3 cr; lab. 2 cr. The laboratory work includes map interpretation. Prerequisite: Geology 1. Lab. fee $3.00. Mr. Tyler, Mr. McKinstry.

115. METAMORPHIC GEOLOGY. II; 5 cr. Prerequisites: Geology 1 or 9 and 6 or 7. Offered 1940-41 and in alternate years. Lab. fee $3.00. Mr. Tyler, Mr. McKinstry.

117. PRINCIPLES OF PRE-CAMBRIAN GEOLOGY. I; 2 cr. Prerequisite: Geology 114. Offered 1940-41 and in alternate years. For field trips see course 125. Mr. Tyler, Mr. McKinstry.

150. ECONOMIC ASPECTS OF GEOLOGY. I; 2 cr. Mineral resources from the standpoint of geographic and commercial distribution, valuation, taxation, conservation, and international relations. This course is introductory to Geology 151. Offered 1941-42

151. GEOLOGY OF MINERAL DEPOSITS. II; 5 cr. Metallic and non-metallic mineral deposits are studied from the standpoint of mineralogy, field occurrence, and genesis. Prerequisites: Chemistry 1, Geology 6 or 7, and Geology 1, or 9, and 52. It is desirable, but not essential, that this course be preceded by course 150. Lab. fee $3.00. Offered 1941-42 and in alternate years. Mr. McKinstry.

153. MINERAL RESOURCE VALUES. I; 1 cr. A general discussion of commercial, social, and political elements in resource valuation. Should be preceded by elementary courses in geology, geography, mining, or economics. Offered 1941-42 and in alternate years. Mr. Leith.

HISTORICAL GEOLOGY, STRATIGRAPHIC GEOLOGY, PALEONTOLOGY, SEDIMENTATION

22. ELEMENTARY PALEONTOLOGY. II; 2 cr. A study of extinct organisms. Prerequisite: Zoology 1 or Geology 9. Not open to students who have had Geology 1. Fee $1.50. Mr. Newell.

112. HISTORICAL GEOLOGY AND STRATIGRAPHY. Yr; 3 cr. Prerequisites: Geology 1 or 9, and 121. Offered 1940-41 and in alternate years. Lab. fee $2.00 per semester. Mr. Twenhofel, Mr. Newell.

121. PALEONTOLOGY OF INVERTEBRATES. Yr; 3 cr. Prerequisite: Geology 1, 9, or 22, or Zoology 1. Offered 1941-42 and in alternate years. Lab. fee $3.00 per semester. Mr. Newell.

122. MICROPALEONTOLOGY. I; 5 cr. A study of microscopic fossils with emphasis on their stratigraphic utilization in oil field geology. Prerequisite: Geology 121. Offered 1940-41 and in alternate years. Lab. fee $5.00. Mr. Newell.

123. OIL GEOLOGY. II; 2 cr. Prerequisites: Geology 1 or 9, 114, and senior standing. Offered 1940-41 and in alternate years. Mr. Twenhofel.

133. SEDIMENTATION. I; 5 cr. Prerequisites: Geology 1 or 9, 6, 114, and senior standing. Lab. fee $3.00. Mr. Twenhofel, Mr. Tyler.

134. REGIONAL GEOLOGY. Yr; 2 cr. A study of world geology. Western hemisphere first semester, eastern hemisphere second semester. Prerequisites: Geology 1 or 9, 114, and senior standing. Offered 1941-42 and in alternate years. Mr. Twenhofel.

136. PRINCIPLES OF EROSION. II; 2 cr. Principles of erosion, particularly in relation to erosion of the soils of agricultural areas, and the ultimate economic, social and political consequences of erosion. Prerequisite: Junior standing. Mr. Tyler.

233. STUDIES OF SEDIMENTS. II; 2 cr. Prerequisite: Geology 133. Lab. fee $5.00. Mr. Tyler.

MINERALOGY AND PETROLOGY

6. GENERAL MINERALOGY. Yr; 5 cr. Prerequisite: Chemistry 1 or a high-school course in chemistry. Lab. fee $6.00 per semester. Mr. Winchell, Mr. Emmons.

7. SHORT COURSE IN MINERALOGY. I; 3 cr. Lab. fee $6.00. Mr. Emmons.

8. LITHOLOGY. II; 3 cr. The megascopic study of igneous, metamorphic and sedimentary rocks. Prerequisite: Geology 1, 9 or 17. Open to graduate students but does not carry graduate credit. Mr. Emmons, Mr. Newell.

108. Petrology. Yr; 5 cr. Prerequisite: Geology 6 or 7. Lab. fee $10.00 per semester. Mr. Winchell.

120. Advanced Mineralogy. I or II; 2-4 cr. The relations between composition and optical properties in isomorphous groups. Prerequisite: Geology 6. Mr. Winchell.

129. Petrogeny. Yr; 2 or 3 cr. Prerequisite: Geology 108. Lab. fee $1.00. Mr. Winchell.

138. Microscopic Identification of Crystalline Materials by Immersion Methods. I; 4 cr. Prerequisite: Consent of instructor. Lab. fee $10.00. Mr. Emmons.

139. Universal Stage Studies. II; 2 cr. Prerequisite: Geology 108 or 138. Offered 1941-42 and in alternate years. Lab. fee $5.00. Mr. Emmons.

141. Mineragraphy. II; 2 cr. Prerequisite: Geology 6. Lab. fee $6.00. Mr. McKinstry.

GLACIAL GEOLOGY AND PHYSIOGRAPHY

109. Advanced Physiography. I; 3 cr. Study of methods of research and of special problems in the origin of land forms. Offered 1940-41 and in alternate years. Mr. Thwaites.

130. Physiography of the United States. Yr; 3 or 5 cr. Prerequisite: Geology 1, 9 or 17, or Geography 2. First semester not prerequisite to second. Lab. fee $1.00 per semester for 5 cr. only. Mr. Thwaites.

143. Glacial Geology. II; 3 cr. Prerequisite: Geology 1 or 9, or Geography 2. Mr. Thwaites.

GERMAN

Professors Bruns, Heffner, Roeseler, Twaddell, *chairman*; Associate Professors Ernst, Rehder; Assistant Professors Kittel, von Greuningen; Instructors Riegel, Salinger, Workman.

For Attainment Tests see section 11, page 47. Proficiency in German shall be shown by demonstrating, in course and by a final comprehensive examination, (a) adequate comprehension of representative passages from classic and modern authors, (b) a systematic as well as functional command of German grammar, (c) the ability to understand and pronounce simple phrases in the spoken language, (d) some knowledge of the literature and culture of the German-speaking peoples, (e) a fair degree of familiarity with the works of some single major German author. The curricular preparation for such proficiency is offered in courses (beyond German 2b or the intermediate examination) 20a, 20b, 25a, 101, and any one course in the group 105-109.

The Elementary Courses represent the work normally done in the first and second years, and are graded to meet the needs of high-school graduates with different degrees of preparation. One year of high-school work is considered as equivalent to one semester (4 credits) of college work; but freshmen, as well as students transferring from other colleges, are assigned to the various courses and given credit for the work done elsewhere on the basis of placement and attainment examinations. Special sections of German 1a, 1b, and 2a have been organized for students who appear to possess a special aptitude for language study, as determined on the basis of record, placement examinations, and aptitude tests. In these sections increased amounts of reading material are covered, with a corresponding reduction in the number of semesters required for the completion of the elementary work in German. On the other hand, students in elementary courses who are experiencing difficulty, especially in grammar and pronunciation, are given an opportunity to receive special group aid once a week.

The Advanced Practice Courses are intended for specific practical ends, definitely stated in each case. None of these courses is required of students wishing to study German for purely literary purposes.

The Literary Courses are of very different degrees of advancement. The less advanced courses are divided into two groups designated A and B. Students are advised not to enter group B unless they have taken at least one course in group A, or its equivalent. About nine credits in these two groups combined are prerequisite for the higher courses (beyond 110) in literature or philology. Students intending to specialize in German literature are advised to do related work in English and comparative literature, in medieval and modern history, especially German history, in the history of art, and in philosophy. They are required to study a second foreign language (see below) and should try to pursue the study of at least one other foreign literature, ancient or modern.

The Philology Courses are primarily intended for graduate students working for a higher degree, but some of them are well suited to the needs of advanced undergraduates. This is especially true of courses 150 and 191, which are so conducted as to be of direct benefit to properly qualified seniors, and are required of those preparing to teach German as their major subject.

Major: 32 credits or equivalent, including at least 8 credits beyond course 110. Students who are requested to write a thesis need take only 4 credits beyond course 110. All students offering a foreign-language major are required to present 8 credits or to pass the "intermediate knowledge" test in a second language. Those intending to work for the degree of M.A. with a major in German should note that they too will be required to prove such knowledge.

For the requirements for a teaching major and minor, see School of Education.

Deutscher Verein. All students and instructors who are interested in the German language and literature and in German life and culture are eligible to membership in the German Club, which meets in general twice a month while the University is in session. The programs comprise lectures, recitations, singing, dramatic and musical performances, and social entertainments. Once a week students meet at the German House for song practice.

Deutsches Haus. The German House, which is intended primarily for the benefit of students who wish to maintain or improve their speaking knowledge of German, is open to women students for room and board, and to both men and women residing outside the house for meals. The house is in charge of a regular member of the German Department and German is spoken at meals and is the official language of the house. Members of the teaching staff live and board at the house and preside at the tables. Especially those students who intend to teach German are urged to room or board at the house, but all others who desire practice in hearing and speaking German are eligible to full membership and are welcome as table boarders. A few undergraduate German House scholarships are available for students majoring or minoring in German who could otherwise not afford to live or board at the House. For further information, apply to German House, 508 North Frances Street, Madison.

1a. First-Semester German. I, II; 4 cr. Pronunciation, grammar foundation, oral and written exercises. Several sections.

1b. Second-Semester German. I, II; 4 cr. Prerequisite: German 1a, or one year of high-school German. Several sections.

2a. Third-Semester German. I, II; 3 cr. See 4. Prerequisite: German 1b, or two years of high-school German. Several sections.

2b. Fourth-Semester German. I, II; 3 cr. See 4. Prerequisite: German 2a, or equivalent. Several sections.

4. Practice Reading. I, II; 2 cr. Modern prose. Open only in connection with 2a, 2b, or 20. Not recommended for students planning to take more than 16 credits in German. Several sections.

ADVANCED PRACTICE COURSES

25. Intermediate Composition and Conversation. Yr; 2 cr. Prerequisite: German 2b. Required of all teaching majors and minors, unless 112 is substituted. Several sections.

28. Scientific German. Yr; 2 cr. Especially for students of chemistry. Prerequisite: German 2b or equivalent. Miss Ernst.

29. Scientific German. Yr; 2 cr. Especially for students of medicine. Prerequisite: German 2b or equivalent. Miss Ernst.

44. Journalistic German. Yr; 2 cr. Reading and discussion of books, newspapers, and periodicals. Primarily for students in journalism and commerce. Prerequisite: German 2b or equivalent. Mr. von Grueningen.

80. Supervised Individual Reading. Yr; 2 or 3 cr. For upper-group students who have passed the "intermediate" test or have had 2 years of German and desire further practice in reading, not in German literature, but in subject matter related to their major field of study, e.g., history, philosophy, other literature, economics, or the sciences. Texts of general and not too technical character are to be agreed upon in consultation with the student's major professor. Each individual arrangement requires the approval of the Dean and of the Chairman of the German Department. Maximum number of credits: six.

100. Senior Thesis. Yr; 2 cr. Students must register with the chairman of the department either in the second semester of their junior year or at the beginning of the senior year. The executive committee of the department will decide whether a student is to be required to write a thesis or assigned to a substitute course in the 100-group of courses.

112. Advanced Composition and Conversation. II; 2 cr. For students who have a good command of German grammar and fair conversational ability. Strongly recommended to teaching candidates working for an M.A. degree. Mr. Rehder.

212. Exercise in German Style. I; 2 cr. Analysis of distinguished modern German prose specimens; free composition. Mr. Roeseler.

SUPPLEMENTARY COURSES

75. German Classics in English Translation. See Comparative Literature 75. Does not count toward the German major.

110. Deutsches Volkstum: Dichtung und Kunst. Sem; 3 cr. A study of characteristic periods and movements of the cultural development of Germany. Considerable outside reading. Especially recommended to prospective teachers of German. Offered 1940-41. Mr. Roeseler.

210. Backgrounds of German Literature. I; 2 cr. Assigned readings and weekly discussion group meetings on the relations of German literature to German art, music, and philosophy. Offered 1940-41. Mr. Rehder.

GERMAN LITERATURE—GROUP A

The courses in Group A are intended primarily for students who have had German 2b or its equivalent. Students having already five credits in advance of German 2b will be required to do additional work to receive full credit. German is used to some extent as the language of the classroom in these courses.

20. Classical and Modern Writers. Yr; 3 cr. Prerequisites: German 2a; grade-point average of 2 in German. Mr. Twaddell, Mr. Rehder, Mr. Riegel, Mr. Salinger, Mr. Workman, Mr. Heffner.

22. Readings in Prose Fiction of the 19th and 20th Centuries. Yr; 3 cr. Prerequisite: German 2b. Mr. Riegel, Mr. Salinger.

23. READINGS IN THE DRAMA OF THE 19TH AND 20TH CENTURIES. Yr; 3 cr. Prerequisite: German 2b. Mr. Workman.

GERMAN LITERATURE—GROUP B

These courses are open to students who have had six credits in Group A (with a grade-point average of 1.5) and, at the option of the instructor, German 25 or a qualifying grammar examination.

101. ELEMENTARY SURVEY. II; 3 cr. Lectures (in English) on the history of German literature; readings on the history of literature, study of characteristic works, in full or in extract. Not intended for students required or otherwise planning to take course 131. Offered 1940-41.

102. THE CLASSICAL PERIOD. Yr; 2 or 3 cr. Class reading in drama and lyric, outside reading in the novel, written reports. Offered 1940-41. Miss Kittel.

103. THE NINETEENTH CENTURY. Yr; 2 or 3 cr. Class reading in drama and lyric, outside reading in the novel, written reports. Not offered 1940-41. Mr. Bruns.

104. CONTEMPORARY LITERATURE. I; 2 or 3 cr. Class reading in drama and lyric, outside reading in the novel, written reports. Not offered 1940-41.

105. SCHILLER. I; 3 cr. Not offered 1940-41. Mr. Workman.

106. GRILLPARZER. I; 3 cr. Offered 1940-41. Mr. Salinger.

107. HEBBEL. II; 3 cr. Not offered 1940-41. Mr. Bruns.

108. KELLER. II; 3 cr. Offered 1940-41. Mr. Riegel.

109. HAUPTMANN. II; 3 cr. Not offered 1940-41.

GERMAN LITERATURE—ADVANCED COURSES

130. GOETHE. Yr; 3 cr. A general study of Goethe's life and works. Not offered 1940-41. Mr. Bruns.

131. SURVEY OF GERMAN LITERATURE. Yr; 2 or 3 cr. Lectures in German, with outside reading of representative works from the eighth century to the present. Required for the teaching major and for the M.A. Mr. Bruns.

134. LYRIC POETRY 1750 TO THE PRESENT. Yr; 3 cr. The development of German lyric poetry. Introduction to modern German metrics. Offered 1940-41 and in alternate years. Mr. Bruns.

135. PROSE FICTION OF THE NINETEENTH CENTURY. I; 3 cr. A study of the German *Novelle* during the 19th century. Lectures on the development of the novel. Offered 1941-42. Mr. Roeseler.

136. PROSE FICTION OF THE TWENTIETH CENTURY. II; 2 cr. A study of the German *Novelle* in the 20th century. Offered 1941-42. Mr. Roeseler.

140. GERMAN LITERARY THEORY AND CRITICISM. Yr; 2 cr. History of German criticism, with attention to foreign influences upon the theory of literature. Not offered 1940-41. Mr. Bruns, Mr. Rehder.

142. THE DRAMA OF THE NINETEENTH CENTURY. Yr; 2 cr. Lectures in German, assigned reading, and semester topics. Offered 1941-42. Mr. Bruns.

180. SPECIAL READING. Advanced study in a special field of literature or language under the guidance of a member of the department. Credit and conference hours to be arranged. Candidates should consult the chairman of the department. See section 20, page 60.

200. INDIVIDUAL RESEARCH. Investigations not related to any particular course or seminary, carried on in consultation with a member of the department. Credit and conference hours to be arranged. Candidates should consult the chairman of the department.

219. German Literature from the Beginnings to 1400. II; 3 cr. Prerequisite: German 151. Offered 1941-42. Mr. Twaddell.

220. German Literature 1400-1750. II; 3 cr. The literature of the Renaissance, Reformation, Baroque, and Aufklärung. Lectures and readings. Offered 1940-41. Mr. Rehder.

246. Bibliography and Methods. I; 1 cr. Required of all members of the proseminary or seminary in literature. Mr. Bruns.

247. Proseminary in German Literature. Yr; 2 cr. Mr. Rehder.

248. Seminary in German Literature. Yr; 2 cr. Mr. Bruns.

GERMAN PHILOLOGY

150. History of the German Language. II; 2 cr. Lectures on the development of the German language, its sounds, forms and vocabulary. Mr. Twaddell.

151. Introduction to Middle High German. I; 3 cr. Mr. Heffner.

152. Readings in Middle High German. II; 3 cr. Lectures and interpretations. Assigned collateral reading. Selections from *Kudrun, Parzival, Tristan and Isolt,* Walther von der Vogelweide, and Hartmann von Aue. Mr. Heffner.

155. Old High German. II; 2 cr. Readings, phonology, morphology, dialects. Offered 1940-41. Mr. Heffner.

158. Old Saxon. I; 2 cr. Not offered 1940-41. Mr. Twaddell.

191. Phonetics. I; 3 cr. With special reference to the teaching of German. Mr. Heffner and Mr. Heffner.

250. Individual Research in German and Germanic Philology. Credit and conference hours to be arranged. Mr. Heffner, Mr. Twaddell.

260. Philological Proseminary. Studies in Early Modern High German. I; 2 cr. Investigations of short specimen texts from various dialects of the period between 1300 and 1600. An introduction to methods of linguistic research. Mr. Heffner.

261. Historical Grammar of the German Language. I; 2 cr. Offered 1940-41. Mr. Twaddell.

268. Introduction to the Study of Germanic Philology. I; 3 cr. Introduction to the Gothic language. The general characteristics of the Germanic languages, with special reference to phonology. Mr. Heffner.

269. Introduction to the Study of Germanic Philology (Continued). II; 2 cr. The general characteristics of West Germanic, Gothic, North Germanic, English, and High German. A general introduction to Germanic morphology. Offered 1941-42. Mr. Heffner.

270. Philosophical Seminary. II; 2 cr. Textkritische Übungen. Mr. Heffner.

HISTORY

Professors Hesseltine, Hicks, *chairman,* Higby, Knaplund, Nettels, Reynolds, Sellery; Associate Professors Easum, Post; Assistant Professor Edson; Instructor Sachse.

When history is offered as one of the required studies in the general course leading to the degree of Bachelor of Arts (see page 62), the requirement must be satisfied by a continuous three-credit course extending through two semesters.

The courses in history are divided into three groups: (a) Courses numbered under 100 carry only undergraduate credit. The introductory courses 1, 2, 3, 5, and 10 (see details below) are the courses open to freshmen. (b) Courses numbered in the 100-series continue in the direction of greater specialization the work begun in the introductory courses; they may be elected by students who have the necessary preparation. (c) Courses numbered above 200 are open only to graduate students.

MAJOR FIELDS OF CONCENTRATION.

(a) European History.
(b) American History.
(c) History of Culture.
(d) Hispanic Studies (See page 51).

Students with a major in Social Sciences electing to work in history will elect one of these fields of concentration, and offer not less than 32 nor more than 40 credits in history, including History 2 or 3b,* or 138 or 139, one other introductory course (History 1, 3,* 5, or 10), History 4 (6 credits), and at least 16 credits in advanced history courses taken in residence at the University of Wisconsin, of which 10 must be confined to European history or American history, except as specified below for Field of Concentration (c).

Field of Concentration (c) requires either (I) History 1 or 5 (4 or 6 credits), History 10 (4 or 6 credits), and History 2 (4 or 6 credits) or History 4 (6 credits); or (II) History 3 (10 credits) and History 10 (4 credits) or History 4 (6 credits), and advanced history courses up to the minimum of 32 credits. It also requires an attainment examination in Latin and in one modern language, and contemplates a supervised selection of courses in non-historical subjects within the field of concentration. It is preferable for majors in this field to select their major in their sophomore year.

Of the 16 credits in advanced courses, 2 credits in each semester of the senior year may, in the judgment of the adviser, be assigned to the preparation of a thesis (History 100-A) or a thesis course (History 100-B) in the field of concentration. In addition to the courses in history, the major in Fields of Concentration (a) and (b) requires Economics 1a and Political Science 1 or 7; and Sociology 110 (Pre-History) and Geography 1-2 are strongly recommended.

A major in Social Sciences who elects (a), (b), or (c) as his field of concentration may be admitted to advanced independent work at the beginning of his junior year provided that (1) he has a 2.5 grade-point average for his first two years; (2) he has completed the required freshman and sophomore work in history; and (3) he is recommended for independent work by three of his sophomore instructors of whom one must be a member of the Department of History.

TEACHING MAJOR AND MINOR. See Bulletin of the School of Education.

I. INTRODUCTORY COURSES

Open to Freshmen

Students may take only one of the courses 1, 2, 5, or 10 for three credits a semester, since each contains introductory training for which credit will not be given twice; that is, if they have had or are taking one of these courses for three credits at the University of Wisconsin (which includes the Extension Division and the Milwaukee Extension Center), another, elected at the same time or thereafter, may be taken from this group for two credits a semester only, omitting the supplementary reading and a topical report, but if only one of these courses is taken, it must be for three credits per semester throughout the year. Advanced students who have fulfilled the option in history for the bachelor's degree or who are not registered in the College of Letters and Science may take any of these four introductory courses for two credits each semester. Students who take History 3 cannot elect History 1 or 2; they may take History 5 or 10, each for 2 credits a semester.

1. MEDIEVAL HISTORY. Yr; 3 or 2 cr. Course in Humanities students who elect this course must take it for 4 credits, but only such students may take it for 4 credits. Mr. Reynolds and staff.

*Students who take History 3 cannot elect History 1 or 2.

2a-b. Modern European History. Yr; 3 or 2 cr. A survey of the principal developments in the history of Europe from 1492 to the present. Mr. Higby, Mr. Easum, and staff.

2b-a. Modern European History. Yr; 3 or 2 cr. This course commences in the second semester, but is otherwise identical with History 2a-b.

3. European Civilization Since the Fall of Rome. Yr; 5 cr. An introduction to the cultural and intellectual as well as the institutional and economic history of modern Europe. Mr. Post, Mr. Easum, and staff.

5a-b. English History. Yr; 3 or 2 cr. Political, constitutional, economic, and social development; relations between England, the other parts of the British Isles, and the continent of Europe; the imperial expansion. Period covers pre-historic times to the present. Mr. Knaplund and staff.

5b-a. English History. Yr; 3 or 2 cr. This course commences in the second semester, but is otherwise identical with History 5a-b. Mr. Sachse.

10. Ancient History. Yr; 3 or 2 cr. Survey of the history of civilization from the beginnings in Egypt and Babylonia to the triumph of Christianity, with emphasis on institutional and social development. Mr. Edson and staff.

Not Open to Freshmen

4a-b. History of the United States, 1763-1941. Yr; 3 cr. Survey of American social, political, and economic development. Special conference sections on the relations of literature and education to political and social events. Prerequisite: Sophomore standing. Mr. Hesseltine and staff.

II. TRAINING COURSES AND SPECIAL WORK

100-A. Senior Thesis. Yr; 2 cr.

100-B. Thesis Course. Yr; 2 cr. Prerequisites: Senior standing; major in history.

180. Special Work. Upper-class history major students of known capacity, may, by agreement with the major professor, arrange for special out-of-class work, for which credit may be allowed, during the recesses of the University, on the basis of one credit for each week, or its equivalent, devoted exclusively to the special project. Open only to upper-group majors in the department by consent of instructor. See section 20, page 60.

200. Graduate Thesis. Yr; *cr. Staff.

252. Historical Method. Yr; 1 cr. First semester: historical bibliography, sources, and criticism; second semester: historiography. Graduate students in their first year are expected to take this course. Mr. Post and others.

280. Special Work. During the recesses of the University, and in regular terms, by agreement with the major professor, properly qualified graduate students may undertake special out-of-class work, generally upon research problems, for which credit may be allowed on the basis of one credit for each week, or its equivalent, devoted exclusively to the special project.

The Teaching of History and the Social Studies. See Educational Methods 84, bulletin of the School of Education.

Practice Teaching in History on the College Level. See Educational Methods 184, bulletin of the School of Education.

Advanced Course in the Teaching of History and the Social Studies. See Educational Methods 185, bulletin of the School of Education.

III. ANCIENT AND MEDIEVAL HISTORY

126. A History of Rome. Yr; 3 cr. I: The Republic; II: The Empire. A view of Roman history from the beginning of the Roman state to the fall of the Empire in the West. Prerequisite: Junior standing or consent of instructor. Offered 1941-42 and in alternate years. Mr. Edson.

127. A History of Greek Civilization. Yr; 3 cr. Greek history from prehistoric times to the end of the Hellenistic Age. Prerequisite: Junior standing or consent of instructor. Offered 1940-41 and in alternate years. Mr. Edson.

131. Medieval Civilization. II; 3 cr. The nature and direction of the civilization of the twelfth and thirteenth centuries. Prerequisites: History 1, 3, or 5, and junior standing. Not offered 1941-42. Mr. Sellery.

132. History of Italy to the Eighteenth Century. II; 3 cr. History of the Italian people, emphasizing their contributions in the economic, cultural, and political fields, from the later Roman Empire to the eighteenth century. Prerequisite: Introductory course in European history. Not offered 1941-42. Mr. Reynolds.

133. Economic Life in Europe. See VI, Economic and Social History.

134. The Renaissance. I; 3 cr. Various elements contributing to the development of European civilization in the fourteenth and fifteenth centuries, with stress on the drive on non-humanistic life. Prerequisites: History 1, 2, 3, or 5, and junior standing. Not offered 1940-41. Mr. Sellery.

141. English Constitutional History. Yr; 3 cr. Government and law of England from earliest times to the rise of the cabinet system. Prerequisites: History 5; or History 1, 2, or 3, and junior standing. Offered 1940-41 and in alternate years. Mr. Sachse.

164. History of Exploration and Geographical Discoveries, 1200-1700. I; 3 cr. Literature on medieval and early modern explorations in Asia, Africa, and the New World. Economic and political consequences of the "expansion of Europe." Prerequisite: History 1, 2, 3, or 5, or junior standing. In 1941-42 offered the second semester. Mr. Reynolds.

210. Introduction to Greek Epigraphy. I or II; 2 cr. Introduction to the language and content of Greek inscriptions and to the technique of Greek epigraphy as a discipline. Prerequisites: Graduate standing or consent of instructor and reading knowledge of ancient Greek. Mr. Edson.

253. Latin Paleography. I or II; 1 cr. Elements of paleography, with practical exercises in reading of manuscripts. Prerequisite: Graduate standing. Mr. Post, Mr. Reynolds.

254. Seminary in Ancient History. Yr; 2 cr. Special problems in Greek and Roman history will be studied in alternate years. Prerequisites: Graduate standing or consent of instructor and reading knowledge of appropriate foreign languages. Mr. Edson.

257. Seminary in Medieval History. Yr; 2 cr. Studies in the economic history of the Middle Ages. Prerequisites: Graduate standing and reading knowledge of Latin, French, and German. Mr. Reynolds, Mr. Post.

IV. MODERN HISTORY

130. History of Spain, 1469-1825. II; 3 cr. Evolution of the political, social, economic, and cultural life of the Spanish people from the reconquest to the collapse of the Spanish Empire. Prerequisite: History 1, 2, 3, 5, or 10, or junior standing. Mr. Post.

132. History of Italy to the Eighteenth Century. See III, Ancient and Medieval History.

136. History of France, 987-1789. Yr; 3 cr. Political, social, economic, and cultural development of the French Nation in the period of the monarchy. Prerequisite: History 1, 2, 3, 5, or 10, or junior standing. Mr. Post.

138a. The French Revolution and the Napoleonic Period, 1789-1815. I; 3 cr. Effect of the French Revolution and the Napoleonic period on the institutions and conditions of Europe. Prerequisite: Junior standing or consent of instructor. Offered 1941-42 and in alternate years. Mr. Higby.

138b. History of Europe, 1815-1871. II; 3 cr. Effect of the rise of nationalism, liberalism, and the new economic forces upon Europe and European society. Prerequisite: Junior standing or consent of instructor. Offered 1941-42 and in alternate years. Mr. Higby.

139a. The Age of Imperialism, 1871-1918. I; 3 cr. A study of the expansion and rivalries of the nations of Europe during this period. Prerequisite: Junior standing or consent of instructor. Offered 1940-41 and in alternate years. Mr. Higby.

139b. Recent and Contemporary European History, 1918-1941. II; 3 cr. The World War and its aftermath. Prerequisite: Junior standing or consent of instructor. Offered 1940-41 and in alternate years. Mr. Higby.

142. The Emergence of Modern Britain, 1485-1760. Yr; 3 cr. First semester: the Tudor period; second semester: the Stuarts and the early Hanoverians. Survey of political, economic, and social issues and developments; England's commercial and colonial expansion; foreign relations and policies. Prerequisite: Junior standing. Offered 1941-42 and in alternate years. Mr. Sachse.

143. The British Empire Since 1815. Yr; 3 cr. Imperial expansion and imperial policy. Growth of the Dominions; relations with India; the dependent Empire. The Empire and Commonwealth in our own age. Prerequisite: History 5 or junior standing. Mr. Knaplund.

144. Sixteenth-Century Civilization. I; 3 cr. The conflict of secular and religious forces, 1500-1600; with stress on the advance of secular life. Prerequisites: History 1, 2, or 3, and junior standing. In 1941-42 offered the second semester. Mr. Sellery.

146. History of the German People. Yr; 3 cr. First semester: survey of medieval German history; a study of the renaissance, reformation, and Thirty Years' War. Second semester: 1648-1871, with special attention to the rise of Prussia and unification of Germany. Prerequisite: History 1, 2, 3, 5, or 10, or junior standing. Offered 1940-41 and in alternate years. Mr. Easum.

150. Political and Diplomatic History of the British Isles, 1760 to the Present. Yr; 3 cr. Development of political democracy and democratic institutions. Ireland and England. Britain's foreign relations and foreign policy. Prerequisite: History 5 or junior standing. Not offered 1940-41. Mr. Knaplund.

151. Economic and Social History of the British Isles, 1760 to the Present. See VI, Economic and Social History.

164. History of Exploration and Geographical Discoveries, 1200-1700. See III, Ancient and Medieval History.

178. Recent German History. Yr; 3 cr. First semester: the Hohenzollern Empire; its constitution, history, colonial enterprises, and world position. Second semester: war-time and post-war Germany, Weimar republic, and the Third Reich. Prerequisites: History 2, 3, or 146, and junior standing. Offered 1941-42 and in alternate years. Mr. Easum.

258. Seminary in the History of the British Empire. Yr; 2 cr. Aspects of British imperial history. Prerequisite: Graduate standing. Mr. Knaplund.

267. Seminary in Modern European History. Yr; 2 cr. Prerequisite: Graduate standing. Mr. Higby.

V. AMERICAN HISTORY

111. History of the West, 1763-1893. See VI, Economic and Social History.

113. American Social History. See VI, Economic and Social History.

114. Sectionalism and the Civil War. I; 3 cr. Conflict between rising industrialism and the Old South; the abolition crusade; secession; economic and social significance of the Civil War. Prerequisite: Junior standing. Offered 1940-41 and in alternate years. Mr. Hesseltine.

115. The American Revolution and the Constitution, 1760-1789. II; 3 cr. Economic, political, social causes of the Revolution—its military, diplomatic, economic, political aspects; problems of the "Critical Period"; making of the Constitution. Prerequisite: Junior standing. Mr. Nettels.

116. History of the Thirteen Colonies to 1760. I; 3 cr. Founding of English colonies in America; their government, economy, social structure; their relations with England; internal conflicts; and the conflicts of England, Holland, Spain, and France in America. Prerequisite: Junior standing. Mr. Nettels.

117a. Origin and Growth of the Constitution (1700-1835). I; 3 cr. Colonial background of American governments; Philadelphia Convention; rival theories of constitutional interpretations; Supreme Court and the Constitution to the death of Marshall. Prerequisite: Junior standing. Offered 1941-42 and in alternate years. Mr. Hesseltine.

117b. The Constitution in American Development (1835-1939). II; 3 cr. Constitutional aspects of the sectional controversy and Civil War; new economic forces and a changing constitution; trust regulation; progressive movement; social legislation; recent constitutional controversies. Prerequisite: Junior standing. Offered 1941-42 and in alternate years. Mr. Hesseltine.

118. Reconstruction and the New Nation. II; 3 cr. Aftermath of the Civil War; reconstruction; economic consequences of the War; the Grant era; the New South; the continuance and decline of sectionalism. Prerequisite: Junior standing. Offered 1940-41 and in alternate years. Mr. Hesseltine.

119. Latin-American History. Yr; 3 cr. Survey of political, economic, and cultural institutions and developments in the pre-Columbian Indian period, age of conquest, colonial and revolutionary eras, and republican period. Prerequisite: Junior standing.

120. American Foreign Relations, 1775-1941. Yr; 3 cr. The United States in its relations with the outside world, emphasizing public opinion and economic, social, and political forces that have determined American foreign policy. Prerequisite: Junior standing.

122. History of American Economic Life, 1607-1941. See VI, Economic and Social History.

124. Recent History of the United States, 1873-1941. Yr; 3 cr. Economic, social, and political history of the United States from the Panic of 1873 to the present. Prerequisite: Junior standing. Mr. Hicks.

261. Seminary in American History. Yr; 2 cr. Social and economic problems of the Civil War and Reconstruction periods or in constitutional history. Prerequisite: Graduate standing. Mr. Hesseltine.

262. Seminary in American History. Yr; 2 cr. Recent and western history. Prerequisite: Graduate standing. Mr. Hicks.

263. Seminary in American History. Yr; 2 cr. Studies relating to American economic history or to the history of the English colonies in America. Prerequisite: Graduate standing. Mr. Nettels.

VI. ECONOMIC AND SOCIAL HISTORY

111. History of the West, 1763-1893. I; 3 cr. Advance of settlement from the Appalachians to the Pacific, and its effect upon economic and social conditions in the country as a whole. Prerequisite: Junior standing. Mr. Hicks.

113. American Social History. II; 3 cr. Everyday life of Americans, together with their developing cultural, intellectual, and institutional interests, from the seventeenth century to the present. Prerequisite: Junior standing. Mr. Hicks.

122. History of American Economic Life, 1607-1941. Yr; 3 cr. First semester: period 1607 to 1860—production, commerce, finance in the United States; influence of economic forces on politics, social conflicts, and public policy. Second semester: period 1861 to 1941—rise and organization of Big Business, imperialism, public control of industry, the World War, the business cycle, and the New Deal. Prerequisite: Junior standing or History 4. Mr. Nettels.

133. Economic Life in Europe. I; 3 cr. Agriculture, industry, and commerce in the Middle Ages and early Modern period. Prerequisite: History 1, 2, 3, 5, or 10, or junior standing. Not offered 1940-41. Mr. Reynolds.

151. Economic and Social History of the British Isles, 1760 to the Present. Yr; 3 cr. The economic revolution of the eighteenth century. Industrial changes, transportation, commerce. Economic and social problems. The policy of the government. Prerequisite: History 5 or junior standing. Not offered until 1942-43. Mr. Knaplund.

IRISH

Professor Dillon, *chairman*

The elementary courses in Irish are for beginners, but some training in grammar, preferably knowledge of a foreign language, is desirable.

See page 47 for attainment tests which may, at the option of the student be substituted for the required number of credits in meeting the language requirements for the bachelor's degree. List of suggested readings in preparation for the proficiency test may be obtained from the departmental office.

1. Elementary Modern Irish. Yr; 4 cr. Elementary grammar and syntax, with translation and prose composition. Not offered 1940-41. Mr. Dillon.

110. Advanced Modern Irish. Yr; 3 cr. Prerequisite: Irish 1 or consent of instructor. Classical Modern Irish prose, Bardic Poetry, the Fenian Cycle. Not offered 1941-42. Mr. Dillon.

131. Elementary Old Irish. I; 3 cr. Prerequisite: Senior or graduate standing. Selections from the Old Irish glosses and from Táin Bó Cualnge. Simple exercises in translation. Mr. Dillon.

132. Middle-Irish Texts. II; 3 cr. Prerequisite: Irish 131 or consent of instructor. Early prose and verse. The Ulster Cycle. Mr. Dillon.

133. Studies in Irish Civilization. See Comparative Literature 133. Does not give foreign-language credit.

201. Irish Seminary. Yr; 2 cr. Advanced work in Old and Middle Irish. Mr. Dillon.

205. Introduction to Medieval Welsh. II; 2 cr. Mr. Dillon.

208. Introduction to the Comparative Grammar of the Celtic Languages. Not offered 1940-41. Mr. Dillon.

JOURNALISM

PROFESSORS HYDE, *chairman*, SUMNER; ASSOCIATE PROFESSOR THAYER; ASSISTANT PROFESSORS NEAL, PATTERSON; LECTURER MOORE.

PURPOSE AND PLAN. The courses in journalism are designed to give the student instruction and practice in newspaper writing and editing, in some kinds of magazine writing, and in advertising, as well as to present current problems of journalism in the light of their origin and history. They have been arranged to meet the needs of students in the School of Journalism, and of those in the Colleges of Letters and Science, Agriculture, and Engineering who desire training in journalistic writing.

FEES. A laboratory fee of $1.50 per semester is charged each student taking courses in journalism, except those taking only Journalism 1, 201, 202, or 203; additional fees of $1.50, $1.00, and $2.50 are charged in Journalism 3, 4, and 10.

MAJOR. The undergraduate major in journalism is offered only to candidates for the degree of Bachelor of Arts (Journalism). It requires not less than 30 credits, as outlined under the heading, School of Journalism, on page 78.

*1. FRESHMAN SURVEY OF JOURNALISM. Yr; 1 cr. Lecture course required of freshmen in pre-journalism curriculum. I Sem., Vocational guidance survey of journalism; II Sem., Orientation survey of the newspaper and society. Mr. Hyde.

2. NEWSPAPER REPORTING. Yr; 3 cr. Lectures and practice; students cover assignments for newspapers and receive criticism in weekly discussion groups. Required of students in School of Journalism. Mr. Hyde, Mr. Neal, and staff.

*3. NEWSPAPER DESK WORK. Yr; 3 cr. Prerequisite: Nine grade-points in Journ. 2. Additional fee $1.50 per semester. One lecture and four hours a week on copy desk and in type laboratory. Mr. Neal and staff.

*4. ADVERTISING TYPOGRAPHY. II; 1 cr. Laboratory work in typography of advertisements. Required of students in the Advertising Group. Additional fee $1.00. Mr. Foss.

*6. ENGLISH IN BUSINESS. (See Commerce 6.)

10. NEWS PHOTOGRAPHY. I, II; 1 cr. Special problems of photography for newspapers and magazines; practice with various cameras. Class limited to 15 journalism juniors and seniors. Additional fee $2.50. Mr. Moore.

*13. MARKETING METHODS. (See Commerce 13.)

*15. PRINCIPLES OF ADVERTISING. (See Commerce 15.) Required of all journalism students.

100. SENIOR THESIS. Yr; 4 cr. Staff.

101. JOURNALISTIC STYLE. I; 2 cr. Analysis of qualities of style peculiar to journalistic writing; vocabulary building. Open to juniors and seniors. Miss Patterson.

102. RADIO NEWS WRITING. II; 1 cr. Analysis of news problems of radio stations; practice in writing and editing, using leased wire press service. Prerequistes: Journ. 2 and 3 and, preferably, Speech 110. Mr. Griffin.

104. EDITORIAL WRITING. I; 2 cr. Practice in editorial writing; analysis of editorial policy; interpretation of current news. Mr. Thayer.

105a. WRITING OF SPECIAL ARTICLES. I; 3 cr. Practice in preparing and selling special articles for newspapers and magazines. Prerequisite: Journ. 2. Miss Patterson.

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*Does not count toward the requirements for graduation from the College of Letters and Science except for students in the School of Journalism, and in other special courses as follows: Journ. 3 counts also in the School of Commerce.

105b. MAGAZINE ARTICLE WRITING. II; 2 cr. Practice in preparing periodical articles on technical, scientific, engineering, and economic subjects. Each student specializes in one field. Miss Patterson.

106. CRITICAL WRITING. II; 2 cr. Practice in writing reviews of motion pictures, plays, concerts, and books for newspapers. Miss Patterson.

107. THE COMMUNITY NEWSPAPER. I; 3 cr. Special problems of small daily and weekly newspapers. Mr. Thayer.

108. NEWSPAPER BUSINESS MANAGEMENT. II; 3 cr. Business problems of smaller newspapers. Mr. Thayer.

109. THE LAW OF THE PRESS. I; 1 cr. Libel, constitutional guarantees, copyright, and other laws affecting publications. Required in the School of Journalism. Mr. Thayer.

110. HISTORY OF JOURNALISM. I; 3 cr. Evolution of the newspaper in England and the United States, with special reference to current problems of journalism. Required in the School of Journalism. Mr. Hyde.

110. RADIO SPEAKING. (See Speech 110.)

111. THE NEWSPAPER AND PUBLIC OPINION. II; 3 cr. Relation of the newspaper to public opinion, government and society, including ethics and psychology of journalism. Required in the School of Journalism. Mr. Hyde.

112. REPORTING THE LAW COURTS. II; 2 cr. Practice in reporting local, state, and federal courts; municipal, state, and federal administration. Prerequisites: Journ. 2 and 3. Mr. Thayer.

*116. PROBLEMS IN NATIONAL ADVERTISING. (See Commerce 116.)

117. TECHNICAL AND TRADE JOURNALISM. II; 2 cr. Analysis of editorial and business management of trade journals, house organs, and business papers. Mr. Thayer.

120. COMPARATIVE JOURNALISM (INTERPRETING FOREIGN NEWS). II; 2 cr. The press of other countries, and the American machinery for gathering foreign news; censorship and propaganda. Prerequisite: Junior standing. Mr. Neal.

121. INTERPRETING HISPANIC AFFAIRS. Yr; 1 cr. I. Spain, Mr. Cool. II. Spanish America, Mr. Neale-Silva.

123. WOMEN'S FIELDS IN NEWSPAPERS AND MAGAZINES. II; 3 cr. Preparing material for women's departments in newspapers and magazines. Analysis of the fields in journalism open to women. Prerequisite: Journalism 105a. Miss Patterson.

180. INDEPENDENT READING. Yr; 1-4 cr. Mr. Hyde.

201. SEMINARY IN JOURNALISM. Yr; 2 cr. Subject for 1939-40: American newspapers of 1910-1920. Subject for 1940-41: American newspapers of 1900-1910. (Based on analysis of old files.) Mr. Hyde, Mr. Thayer.

202. SEMINARY IN JOURNALISM. Yr; 2 cr. Subjects for 1939-40: I. Public opinion and the press; II. Propaganda and the press. Subjects for 1940-41: I. The press and the law courts; II. Comparative journalism. Mr. Hyde, Mr. Thayer.

203. SEMINARY IN JOURNALISM. Yr; 2 cr. I. Newspaper reader interest; II. Psychology of journalistic style. Mr. Sumner.

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*Does not count toward the requirements for graduation from the College of Letters and Science except for students in the School of Journalism, and in other special courses as follows: Journ. 3 counts also in the School of Commerce.

LATIN

(See Classics, page 103)

MATHEMATICS

PROFESSORS INGRAHAM, *chairman*, LANGER, MACDUFFEE, MARCH; ASSOCIATE PROFESSORS EVANS, SOKOLNIKOFF; ASSISTANT PROFESSORS KLEENE, TRUMP; INSTRUCTORS ALLEN, EISENHART, HYERS, JACKSON, WILCOX.

Courses 1a, 1b, 3a, 3b and 7 are planned to give a working knowledge of elementary mathematics. Mathematics 7 is required of students in the School of Commerce.

In general students are required to present one full year of mathematics to satisfy the mathematics option for the B.A. degree. However, students who have successfully passed either Mathematics 1b or 3b will be regarded as having fulfilled the mathematics option for the B.A. degree, but students who graduate in Commerce will fulfill the mathematics option for the B.A. degree if they carry Mathematics 7 successfully. Mathematics 7 will not count towards the optional requirement for the B.A., B.S., or Ph.B. degree except for students graduating in the School of Commerce.

MAJOR IN MATHEMATICS. This field of concentration includes all courses taught by the Mathematics Department. The major comprises a minimum of 21 credits which shall consist of a year's course in calculus, Math. 106, and other courses in mathematics numbered 100 or above excluding Math. 108 and 135. Students majoring in this department must earn at least as many grade-points as credits in all work included in the major. Eligibility to write a thesis is based on a minimum of 9 credits in mathematics taken at the University of Wisconsin and is determined by the average number of grade-points per credit earned in the courses included in the major. Those whose average is less than 2.0 are not permitted to write theses; those with averages above 2.0 are subject to individual rulings by the department, with consideration given to the student's record and wishes. Students entering the junior class with advanced standing who expect to complete a major in mathematics in four semesters should previously have completed a year's course in calculus.

MAJOR IN PHYSICS-MATHEMATICS. The courses listed below from (a) to (d) comprise the field of concentration in physics-mathematics. The major consists of the following courses, with a maximum of 40 credits in groups (a) through (d) and a grand total of not more than 50 credits, including group (e).

(a) Mathematics—algebra and trigonometry (which may be completed in high school); analytic geometry and calculus.

(b) Physics 1, 31, or 51-52—10 credits.

(c) A minimum of 6 credits selected from Mathematics 120a, 120b or 112, 104, 116, 117, 118 (120a and 120b refer to the first and second semesters respectively of Mathematics 120).

(d) A minimum of 6 credits selected from Physics 106, 112, 115, 116, 117, 118, 119, 124, 126, 134.

(e) A minimum of 6 credits selected from the following group of courses, which are within the division although not included within this field of concentration. Physics 102, 103, 104; Mathematics 114, 122; Metallurgy 135; Mechanics 101, 107; Electrical Engineering 116, 120, 155; Chemistry 130; Hydraulics 104, 115; Astronomy 6, 101, 102, 116.

THE JUNIOR MATHEMATICAL CLUB, open to all students interested in the subject, meets twice a month.

ELEMENTARY COURSES

1a. ALGEBRA. I, II; 4 cr. For students presenting one unit of algebra for entrance. This course or Mathematics 3a is a prerequisite to all other courses.

1b. TRIGONOMETRY AND ANALYTIC GEOMETRY. I, II; 4 cr. Prerequisite: Math. 1a or two units of high-school algebra. The continuation of Math. 1a for students presenting one unit of algebra for entrance.

3a. ALGEBRA AND TRIGONOMETRY. I, II; 4 cr. For students presenting one and a half units of algebra for entrance. This course or Mathematics 1a is a prerequisite to all other courses.

3b. ANALYTIC GEOMETRY AND INTRODUCTORY CALCULUS. I, II; 4 cr. Prerequisite: Math. 3a, or two units of high-school algebra and one half unit of trigonometry. The continuation of Math. 3a for students presenting one and a half units of algebra for entrance.

7. THEORY OF INVESTMENT. I, II; 4 cr. Prerequisite: Math. 1a or 3a, or two units of high-school algebra. Primarily for students in the pre-commerce sequence.

24. THEORY OF LIFE INSURANCE. II; 3 cr. Prerequisite: Math. 7 or concurrent registration.

50. SUB-FRESHMAN ALGEBRA. I; no cr. For students who fail to pass the examination for admission to Math. 51.

51. ELEMENTARY MATHEMATICAL ANALYSIS. I, II; 5 cr. Required of freshmen in engineering. Mr. March and staff.

52. ELEMENTARY MATHEMATICAL ANALYSIS. I, II; 5 cr. A continuation of Math. 51. Required of freshmen in engineering. Mr. March and staff.

53. ELEMENTARY MATHEMATICAL ANALYSIS. I; 5 cr. A course designed to prepare for calculus in one semester those engineering students who offer a minimum of two years of high-school algebra and a course in trigonometry. Admission to this course is by an examination. Mr. March and staff.

71. MATHEMATICS FOR AGRICULTURAL STUDENTS. I; 4 cr. For students presenting one unit of algebra for entrance.

72. MATHEMATICS FOR AGRICULTURAL STUDENTS. I; 4 cr. For students presenting ond and a half units of algebra for entrance.

INTERMEDIATE AND ADVANCED COURSES

These courses are offered every year unless an exception is specifically noted. Courses 101, 102, 103 and 106 may not be taken for graduate credit by students majoring in mathematics, engineering, or other fields requiring these courses in the undergraduate sequence.

100. SENIOR THESIS. Yr; 2 cr. Staff.

101a. CALCULUS. I, II; 4 cr. Prerequisite: Math. 1b. Staff.

101b. CALCULUS. I, II; 4 cr. Continuation of Math. 101a.

102a. CALCULUS. I, II; 4 cr. Required of all sophomores in engineering. Prerequisite: Math. 52. Mr. March and staff.

102b. CALCULUS. I, II; 4 cr. Continuation of Math. 102a. Required of all sophomores in engineering. Mr. March and staff.

103a. CALCULUS. I, II; 3 cr. Prerequisite: Math. 3b.

103b. CALCULUS. I, II; 3 cr. Continuation of Math. 103a.

104. THEORETICAL MECHANICS. Yr; 3 cr. Statics and dynamics of a particle and of a rigid body. Prerequisite: A year of calculus. Offered 1941-42 and in alternate years. Mr. March.

106. ADVANCED ANALYTIC GEOMETRY. II; 3 cr. Advanced topics in plane analytic geometry and a treatment of solid analytic geometry. Prerequisite: Math. 1b or 3b.

108. College Geometry. II; 3 cr. Advanced topics in Euclidean geometry with emphasis on the postulational method. Open to juniors and seniors. May be counted toward the mathematics requirement for the teaching major and minor. Mr. Trump.

110. Higher Mathematics for Engineers. Yr; 3 cr. A course concerned with application of mathematics. Selected topics from algebra, advanced calculus, ordinary and partial differential equations, vector analysis, probability and statistics are discussed Mr. Sokolnikoff.

112. Differential Equations. II; 3 cr. Prerequisite: A year course in calculus.

114. Advanced College Algebra. Yr; 3 cr. Determinants, elimination, permutations and combinations, interpolation, and the theory of equations. Prerequisite: Math. 101b or 103b, or concurrent registration.

116. Higher Analysis. Yr; 3 cr. Mr. March.

117. Vector Analysis. I; 3 cr. A course in the algebra and calculus of vectors with an introduction to tensor analysis. Applications to geometry and physics are stressed. Offered in 1941-42 and in alternate years. Mr. Sokolnikoff.

118. Probability and Statistics. I; 3 cr. The basic theorems of probability theory and their applications to frequency distributions, dispersion, sampling, correlation, curve-fitting, and least squares. Prerequisite: A year course in calculus. Mr. Evans.

120. Advanced Calculus. Yr; 3 cr. Prerequisite: A year course in calculus.

122. Projective Geometry. Yr; 3 cr. The methods of elementary analytic geometry are extended to projective geometry; the synthetic viewpoint is also considered. Applications to rectilinear figures and conic sections. Prerequisite: Math. 106 or consent of instructor. Offered 1940-41 and in alternate years.

135. Introduction to Statistical Methods in the Natural Sciences. I; 3 cr. For the student seeking experience in the calculation and interpretation of statistical measures and techniques suited to the analysis of small samples. Prerequisite: Math. 1a, or 3a, or 72, and consent of instructor. Lab. fee $2.25. Two lectures; 3 hours laboratory. Mr. Eisenhart.

137. Advanced Probability and Statistics. II; 3 cr. Prerequisite: Math. 118. Mr. Eisenhart, Mr. Evans.

173. A Critique of Elementary and Collegiate Mathematics. II; 3 cr. The historical development with an analysis of the content and interrelations of selected topics in elementary and intermediate mathematics. Open to majors in the Department of Mathematics in their senior year, to graduates, and to others upon consent of the instructor. Mr. Langer.

GRADUATE COURSES

200. Reading and Research. Staff.

217. Tensor Analysis. II; 3 cr. A course in the algebra and calculus of tensors and their applications to various branches of applied mathematics, including the theory of relativity. Offered in 1941-42 and in alternate years. Mr. Sokolnikoff.

219. Differential Geometry. 3 cr. A study of curves and surfaces in three dimensions by classical methods, followed by an introduction to corresponding problems in n-dimensions involving tensor methods.

220. Theory of Analytic Functions. Yr; 3 cr. This course is fundamental in analysis. Content restricted to functions of the complex variable. Some special interest in the application of mathematics to physics. Offered 1941-42 and in alternate years. Mr. Langer.

221. Theory of Functions of a Real Variable. Yr; 3 cr. Offered 1940-41 and in alternate years. Mr. Langer.

222. Projective Differential Geometry. II; 3 cr. A course in the classical differential theories of curves and surfaces in real and complex projective spaces. Foundations and generalizations will be considered. Not offered 1940-41. Mr. Wilcox.

230. Topics in the Foundations of Mathematics. 3 cr. Problems in the critical analysis of the foundations of mathematics, particularly of recursive number theory. Emphasis placed on the structure of mathematical reasoning. Mr. Kleene.

231. Foundations and General Methods of Probability. II; 3 cr. A course treating advanced topics in the theory of probability such as postulational systems, fundamental limit theorems, and the analytical theory of characteristic functions. Mr. Evans.

243. Modern Theory of Differential Equations. I; 3 cr. A critical consideration of the ordinary differential equations in the domain of real variables. Existence theorems. Theorems of oscillation and comparison. Boundary conditions, the Green's function, and the development of functions in terms of solutions of differential equations. Mr. Langer.

244. Higher Geometry. I; 3 cr. Projective geometry in three and higher dimensions. The postulational approach to the subject will also be considered.

250. Seminary in Theory of Elasticity. Yr; 2 cr. Mr. March.

261. Abstract Algebra. Yr; 3 cr. Theory of numbers, abstract groups, algebraic and Galois fields, and matrices, with an introduction to modern abstract algebra. Mr. MacDuffee.

263. Higher Algebra. I; 3 cr. Matrices, linear dependence and independence, quadratic and Hermitian forms, elementary divisors, and an introduction to matric equations. Offered 1941-42. Mr. Ingraham.

265. Harmonic Analysis. Yr; 3 cr. Boundary value problems connected with the partial differential equations of ordinary occurrence in mathematical physics. Fourier's series, series of Bessel's function, and spherical harmonics. Offered 1940-41 and in alternate years. Mr. March.

267. Calculus of Variations. I; 3 cr. An introductory course devoted to the classical theory and problems. Prerequisite: Differential and integral calculus. Not offered 1940-41. Mr. Langer.

268. Partial Differential Equations. II; 3 cr. This course treats the theory of the partial differential equation of the first order and the various types of linear partial differential equations of second order. It presupposes an introductory course in differential equations. Not offered 1940-41. Mr. Langer.

269. Theory of Integral Equations. II; 3 cr. An introductory course. The classical approach to the equations of Volterra and Fredholm types. Mr. Langer.

270. Linear Transformations in Hilbert Space. 3 cr. Hilbert space as an infinite dimensional generalization of geometric spaces; linear, closed subsets and orthogonality. Linear transformations, projections, spectral theory. Rings of operators and connections with the theory of lattices. Geometric aspects of the theory will be stressed. Mr. Wilcox.

271. Linear Algebras. II; 3 cr. A course in the theory of linear associative algebras of finite order and their associated number theories. Prerequisite: Math. 261 or consent of instructor. Mr. MacDuffee.

272. Seminary in Algebra. Yr; 1 or 2 cr. Mr. Ingraham, Mr. MacDuffee.

274. Theory of Numbers and Diophantine Equations. II; 3 cr. Elementary properties of the rational integers and an introduction to the theory of quadratic forms and certain Diophantine problems. Mr. Ingraham.

278. Ordinary Differential Equations of a Complex Variable. II; 3 cr. A study of the properties and functional character of the solutions of ordinary differential

equations in which the variables are complex. Some familiarity with the theory of functions of a complex variable is a requisite. Mr. Langer.

284. SEMINARY IN THE FOUNDATIONS OF MATHEMATICS. II; 2 cr. Mr. Kleene.

Physics 211. ADVANCED DYNAMICS. Yr; 3 cr. Generalized coordinates, Lagrange's and Hamilton's equations, elements of hydrodynamics and of the theory of elasticity. Offered 1941-42 and in alternate years. Mr. March.

Physics 215. THEORY OF ELECTRICITY. Yr; 3 cr. A course devoted to the mathematical treatment of Maxwell-Lorentz theory of electrodynamics. The first half of the course treats those distributions of matter which lead to the solution of Laplace's equation. Offered in 1940-41 and in alternate years. Mr. Sokolnikoff.

Courses in Theory of Elasticity, Theory of Potential, Advanced Algebraic Theory of Equations, Advanced Analytic Theory of Equations, Mathematics of Economic Statistics, Algebraic Geometry, and Infinite Series of Functions are given at intervals when demand warrants.

TEACHERS' COURSE

THE TEACHING OF MATHEMATICS. See School of Education.

METEOROLOGY

LECTURER MILLER, *chairman*.

1. WEATHER AND CLIMATE. I; 3 cr. Prerequisite: A semester of college astronomy, physics or chemistry. Not open to freshmen in the College of Letters and Science. Mr. Miller.

2. CLIMATE AND MAN. II; 3 cr. Prerequisite: A semester of college astronomy, physics or chemistry. Not open to freshmen in the College of Letters and Science. Mr. Miller.

103. METEOROLOGY. Yr; 3 cr. Thermodynamics and mechanics of the atmosphere. Air mass analysis. Prerequisites: Mathematics 112; Physics 115. Offered 1940-41 and in alternate years. Mr. Miller.

106. CLIMATOLOGY. Yr; 3 cr. Reduction of climatological observations. Mapping. Correlation of climatic data. Periodogram analysis. Prerequisite: Econ. 30 or Math. 118. Offered 1941-42 and in alternate years.

110. AERONAUTICAL METEOROLOGY. II; 1 cr. Open to students in Mechanical Engineering who elect the Aeronautics option. May not be taken for credit by Letters and Science students. Mr. Miller.

MUSIC

PROFESSORS BRICKEN, *chairman*, BURLEIGH, COON, GORDON; ASSOCIATE PROFESSORS CARPENTER, ILTIS, JOHANSEN, SWINNEY; ASSISTANT PROFESSORS BARTHEL, DVORAK, EASTMAN; INSTRUCTORS JONES, LUCKHARDT, STRATMAN-THOMAS, SZPINALSKI.

See School of Music, page 93, for outline of four-year curriculum in music.

For regulations covering the election of music courses by non-School of Music students, see page 89, paragraph 5.

New numbers have recently been applied to many of the courses in music. For convenience in identifying the course the number formerly used appears in each case in parentheses immediately following the new number.

Courses numbered from 1 through 100 are open for credit to undergraduates only; from 101 to 199 to both undergraduates and graduates; over 200 to graduates only, or very exceptionally to advanced undergraduates.

THEORY

11. Elementary Theory. Yr; 4 cr. Fundamentals of musicianship, ear-training, dication, solfeggion, elementary strict counterpoint. Staff.

21. Advanced Theory. Yr; 4 cr. Fundamentals of musicianship continued, advanced ear-training, dictation, solfeggio, strict counterpoint. Prerequisite: Music 11b. Staff.

31. (Old 121) Advanced Counterpoint. I; 3 cr. Strict counterpoint in all the species through four-part florid writing. Prerequisite: Music 21b. Mr. Luckhardt.

32. Choral Harmonization and Figured Bass. II; 3 cr. Prerequisite: Music 31 or old 121. Mr. Luckhardt.

33. (Old 102) Harmony. Yr; 3 cr. Prerequisite: Music 21b. Miss Eastman and Miss Thomas.

34. Arranging. II; 2 cr. A practical course in instrumentation for the usual high-school orchestra or band. Prerequisite: Music 32, or 33b, or old 102. Mr. Burleigh.

35. Advanced Ear-Training and Dictation. Yr; 2 cr. Mr. Gordon.

41. Canon and Chorale-Preludes. Yr; 3 cr. The two-part unaccompanied canon; canon against a florid bass; contrapuntal devices used in the writing of the chorale-prelude; the writing of chorale-preludes. Prerequisite: Music 32. Mr. Bricken.

152. Orchestration. Yr; 3 cr. History of orchestration. Representative orchestral works are studied by means of scores and phonograph records. Attendance at rehearsals of the University Orchestra. Texts by Forsyth, Rimsky-Korsakof, Widor, and others. Scoring for orchestra. Prerequisites: Music 32, 33, and 34. Mr. Luckhardt.

162. Composition. Yr; 2 cr. Original composition and analysis, based upon the diatonic system of harmony. Songs, quartets, piano pieces, etc. Prerequisite: Music 32. Mr. Burleigh.

180. Advanced Independent Work. *cr. See Section 20, page 60. Staff.

APPLIED MUSIC

51. Fundamentals of Pianoforte. Yr; 2 cr. All elementary piano students and those whom the instructors designate are taught in class groups. Staff.

61. (Old 81) First-Year Pianoforte. Yr; 2 cr. Fundamentals of musicianship and their application to the pianoforte. One private lesson and one class lesson weekly. Prerequisite: Ability to play easier sonatas by Haydn or Mozart, or their equivalent. Staff.

62. (Old 82) First-Year Voice. Yr; 2 cr. Fundamentals of tone production; principles of correct breathing; resonance; range extension; diction; interpretation of easy songs in English. Mr. Swinney.

63. (Old 83) First-Year Stringed and Other Orchestral Instruments. Yr; 2 cr. The study of solo literature written for these instruments, emphasizing performance. Staff.

64. (Old 84) First-Year Organ. Yr; 2 cr Prerequisite: A satisfactory polyphonic piano technique. Miss Eastman.

71. (Old 81) Intermediate Pianoforte. Yr; 2 cr. Prerequisite: Music 61 or equivalent. Staff.

72. (Old 82) Intermediate Voice. Yr; 2 cr. Art songs in English and Italian; easy oratorio and operatic airs; ensemble. Prerequisite: Music 62, or old 82, or equivalent. Mr. Swinney.

73. (Old 83) Intermediate Stringed and Other Orchestral Instruments. Yr; 2 cr. Prerequisite: Music 63 or old 83. Staff.

74. (Old 84) Intermediate Organ. Yr; 2 cr. Prerequisite: Music 64 or old 84. Miss Eastman.

75. Instrumental Class Instruction. Yr; 2 cr. Fee $5.00. Staff.

76. Conducting. I; 2 cr. Study of rehearsal and baton techniques. Mr. Dvorak.

81. Advanced Pianoforte. Yr; 2-3 cr. Repertoire for teaching and performance. Prerequisite: Music 71 or old 81. Staff.

82. Advanced Voice. Yr; 2-3 cr. Study of embellishments; arias and art songs in English, Italian, German, or French. Solo appearance. Prerequisite: Music 72 or old 82. Mr. Swinney.

83. Advanced Stringed and Other Orchestral Instruments. Yr; 2-3 cr. Prerequisite: Music 73 or old 83. Staff.

84. Advanced Organ. Yr; 2-3 cr. Prerequisite: Music 74 or old 84. Miss Eastman.

85. (Old 76) Orchestra. Yr; 1-2 cr. Prerequisite: Ability to play well an orchestra instrument. Membership decided by try-outs. Open to entire student body. Mr. Bricken.

86. (Old 77) The University Chorus. Yr; 1 cr. The University Singers, the Women's Chorus, and the Men's Chorus are at present subdivisions of the University Chorus. They devote themselves to the study of the masterpieces of choral literature in their respective fields. Open to entire student body. Membership by try-out. Mr. Swinney, Mr. Jones.

87. (Old 80) Bands. Yr; 1 cr. Prerequisites: Knowledge of some band instrument and consent of instructor. Mr. Dvorak.

91. (Old 81) More Advanced Pianoforte. Yr; 2-3 cr. Continuation of repertoire building and preparation for recital. Theory or School Music majors, 2 cr.; applied music majors, with extra work, 3 cr. Prerequisite: Music 81. Staff.

92. (Old 82) More Advanced Voice. Yr; 2-3 cr. Theory or School Music majors, 2 cr.; applied music majors, with extra work, 3 cr. Continued study of repertoire covering all types of vocal literature; stage deportment; preparation for recital and concert appearance. Prerequisite: Music 82. Mr. Swinney.

93. (Old 83) More Advanced Stringed and Other Orchestral Instruments. Yr. 2-3 cr. Theory or School Music majors, 2 cr.; applied music majors, with extra work, 3 cr. Continuation of study of solo literature and repertoire; preparation for recital and concert appearance. Prerequisite: Music 83. Staff.

94. More Advanced Organ. Yr; 2-3 cr. Theory or School Music majors, 2 cr.; applied music majors, with extra work, 3 cr. Continuation of study of organ literature; preparation for recital. Prerequisite: Music 84. Miss Eastman.

191, 192, 193, 194. Artist Course in Applied Music. Yr; 1-2 cr. Prerequisite: Graduate standing in applied music. Staff.

HISTORY

20. (Old 65) Appreciation and History of Music. Yr; 2 cr. A survey of the development of music, stressing the elements of musical understanding and the study of representative compositions as to their musical significance. Open to the general student body. Prerequisite: Sophomore standing. Mr. Johansen.

30. (Old 5) History of Musical Form. I; 2 cr. Historical development of musical forms from folk sources and the early polyphonists. Prerequisite: Music 20b or old 65 and 21b. Fee $1.00. Miss Thomas.

40. Analysis. II; 2 cr. A searching analysis of melodic, harmonic and rhythmic unity in the small form, lied and classical sonata form. Fee $1.00. Miss Thomas.

50. The Classical Period. I; 2 cr. Analysis of the most significant music of Bach. Handel, Haydn and Mozart in vocal and instrumental forms, with the aid of records and scores. Fee $1.00. Mr. Jones.

60. The Romantic Period. II; 2 cr. An analytical study of Beethoven, Mendelssohn, Schubert, Schumann and Brahms through their masterpieces in various fields. Fee $1.00. Mr. Jones.

131. Advanced History of Music. I, II; 3 cr. A minute and critical study of the music and texts of the period; a thorough examination of music, scores, and records. Each of the following periods is a semester course: The Clavecin Period, Mr. Coon; The Modern French School, Mr. Coon; The Development of Chamber Music, Staff. Prerequisites: Music 40, 50, and 60 and consent of instructor. Reading knowledge in at least French and German is recommended. Fee $1.00.

165. Survey of Music. Yr; 3 cr. A critical study of the development of the orchestra and a thorough knowledge of the symphonic literature of the classical, romantic and modern composers. Prerequisite: Music 60; ability to read from the orchestral score. Fee $1.00. Mrs. Carpenter.

GRADUATE COURSES

200. Master's Thesis. Yr; 2 cr. Subjects appropriate for graduate theses are chosen after consultation with the Director. Staff.

201. Research. * credit. Staff.

211. Modern Orchestration. Yr; 2 cr. A further study of modern methods in orchestration. Original work in composition for orchestra will be required. Prerequisite: Graduate standing. Continuation of Music 152. Mr. Luckhardt.

222. Fugue. Yr; 2 cr. Examples taken from Bach and others of the classical period. Two fugues in three or four voices are required each semester. Prerequisite: Music 41b. Mr. Bricken.

231. Seminar. Yr; 2 cr. Essentially a course in musicology. Fields previously studied include the Wagnerian Ring, Early Orchestral Music, Musical Forces up to the Seventeenth Century, Aesthetic Phases of Musical Form, Contemporary American Music, Early Music Theorists. Fee $1.00. Mr. Coon.

262. Modern Harmony and Advanced Composition. Yr; 2 cr. The study of the modern trend in harmony, rhythm, melody, and structure. Original work in symphonic form required for the completion of the course. Prerequisites: Music 41b and 162. Mr. Burleigh.

EDUCATIONAL METHODS IN MUSIC

Educational Methods 2. The Teaching of Vocal Methods. Yr; 3 cr. 1st sem.; 2 cr. 2nd sem. Material and method employed in teaching; development of curricular courses on the college entrance level; practical problems involved in the development of choral groups. Lectures, laboratory practice and observation of classroom teaching. Mr. Gordon, Mr. Sur.

Educational Methods 3. The Teaching of Instrumental Methods. Yr; 3 cr. 1st sem.; 2 cr. 2nd sem. Practical study of stringed and wind instruments; problems of organizing instrumental classes, bands and orchestras on curricular and extracurricular bases. Lectures, laboratory practice and observation of classroom teaching. Fee $3.00. Mr. Gordon, Mr. Sur.

PHARMACY

PROFESSOR RICHTMANN; ASSOCIATE PROFESSOR UHL, *chairman*; ASSISTANT PROFESSOR WAKEMAN; INSTRUCTORS GOLDNER, PARKS.

The professional courses in pharmacy are not open to election for credit by non-pharmacy students without the written permission of the dean of the college. The curriculum of the Course in Pharmacy is outlined on page 69.

PHARMACY

1. ORIENTATION IN PHARMACY. Yr; 2-3 cr. Required of freshmen in the Course in Pharmacy. Courses 1 and 2 should be taken concurrently. Mr. Uhl.

2. ORIENTATION IN PHARMACY. Yr; 1 cr. Prerequisite: Pharmacy 1 or concurrent registration. Lab. fee $7.50. Mr. Uhl and staff.

20. ELEMENTARY PRESCRIPTION PRACTICE. Yr; 2 cr. The compounding and the study of simple prescriptions. Lab. fee $10. Mr. Goldner.

50. HISTORY OF PHARMACY. Yr; 1 cr. Development of pharmacy in the principal countries of Europe and in the United States. Offered 1940-41 and in alternate years. Mr. Richtmann.

51. DRUGSTORE PRACTICE. Yr; 1 cr. Lectures and topics on drugstore practice ranging from the planning and equipment of a store to salesmanship and the laws governing the practice of pharmacy. Offered 1941-42 and in alternate years. Mr. Uhl and special lecturers.

100. SENIOR THESIS. Yr; 2 cr. Lab. fee $5.00. Staff.

121. ADVANCED PRESCRIPTION PRACTICE. II; 4 cr. A study of classes of modes of administration with special reference to incompatibilities. Prerequisites: Pharmacy 20, Pharm. Chem. 126 and 127. Lab. fee $15.00. Mr. Goldner.

124. DISPENSARY PRACTICE. I, II; 2-4 cr. Dispensary problems; hospital practice. Prerequisite: Consent of instructor. Lab. fee $5.00. Mr. Uhl.

128. PHARMACEUTICAL TECHNOLOGY. I; 4 cr. Preparation of pharmaceutical products. Prerequisites: Pharmacy 20, Pharm. Chem. 24. Lab. fee $15.00. Mr. Uhl.

131. ADVANCED PHARMACEUTICAL TECHNOLOGY. I, II; 1-5 cr. Problems in the preparation of pharmaceutical preparations. Prerequisite: Consent of instructor. Lab. fee $5.00 per lab. credit. Mr. Uhl.

160. PHARMACEUTICAL LITERATURE. Yr; 1 cr. Mr. Richtmann.

200. RESEARCH. Yr; 1-5 cr. Lab. fee $5.00 per lab. credit. Staff.

232. GRADUATE PHARMACEUTICAL TECHNOLOGY. Yr; 1 cr. Mr. Uhl.

250. CONFERENCE OF RESEARCH WORKERS. Yr; 1 cr. Mr. Uhl and staff.

PHARMACEUTICAL AND PLANT CHEMISTRY

24. ORGANIC CHEMISTRY FOR PHARMACY STUDENTS. Yr; 2 cr. An elementary course drawing upon materials for pharmacy and medicine for illustration and emphasizing reactions of pharmaceutical importance. Prerequisite: Chemistry 1b. Lab. fee $10.00. Mr. Parks.

100. SENIOR THESIS. Yr; 2 cr. Lab. fee $5.00. Staff.

126. INORGANIC PHARMACEUTICAL CHEMISTRY. I; 3 cr. A review of the principles of inorganic chemistry with special attention to methods for preparing and testing medicinal chemicals. Prerequisite: Chemistry 1b. Lab. fee $10.00. Mr. Parks.

127. ORGANIC PHARMACEUTICAL CHEMISTRY. II; 3 cr. A review of the principles of organic chemistry with special reference to organic medicinal chemicals. Prerequisite: Pharm. Chem. 24 or Chem. 120. Lab. fee $10.00. Mr. Parks.

129. Synthetic Organic Remedies. Yr; 1-5 cr. Preparation and properties of synthetic organic remedies. Prerequisite: Pharm. Chem. 24 or Chem. 120. Lab. fee $5.00 per lab. credit. Offered 1941-42 and in alternate years. Miss Wakeman.

140. Plant Chemistry. Yr; 3 cr. Plant products and plant chemical processes. Prerequisite: Pharm. Chem. 24 or Chem. 120. Lab. fee $15.00. Miss Wakeman.

145. Pharmaceutical Assaying. Yr; 2 cr. Quantitative analysis both gravimetric and volumetric as applied to the assay of pharmaceutical materials. Prerequisite: Pharm. Chem. 126 or concurrent registration. Lab. fee $10.00. Mr. Goldner.

200. Graduate Research. Yr; 2-6 cr. Volatile oils and other subjects of organic chemistry with special reference to plant chemistry. Lab. fee $5.00 per lab. credit, maximum of $25.00. Staff.

241. Advanced Plant Chemistry. Yr; 2 cr. Staff.

PHARMACOGNOSY

10. Crude Vegetable and Animal Drugs. Yr; 1 cr. An introductory course in pharmacognosy based upon a morphological arrangement. Mr. Richtmann.

21. Doses of Vegetable and Animal Drugs. I, II; 1 cr. A general consideration of the various items associated with doses of medicines. Prerequisites: Pharmacognosy 10, Botany 1, Chemistry 1. Mr. Richtmann.

22. Habitats of Crude Vegetable and Animal Drugs. I, II; 1 cr. Various factors influencing the geographic sources of natural remedial agents. Mr. Richtmann.

100. Senior Thesis. Yr; 2 cr. Lab. fee $5.00. Mr. Richtmann.

110. Sources of Information of Crude Vegetable and Animal Drugs. I, II; 1-5 cr. The use of the library in locating the literature relating to drugs. Mr. Richtmann.

120. Natural History of Vegetable and Animal Drugs. Yr; 3 cr. A monographic study of a considerable number of vegetable and animal drugs, based on their natural relationships. Prerequisites: Pharmacognosy 10, Botany 1, Chemistry 1. Lab. fee $5.00. Mr. Richtmann.

130. Cultivation of Medicinal Plants. Yr; 1-5 cr. Mr. Richtmann.

200. Research in Medicinal Plants. Yr; 1-5 cr. Lab. fee $5.00 per lab. credit. Mr. Richtmann.

PHILOSOPHY

Professor Otto, *chairman*; Associate Professors Bögholt, Garnett; Assistant Professors Ely, Ramsperger, Vivas; Lecturer Fries; Instructors Burkhardt, Taylor.

The student is at liberty to begin his work in philosophy with any of the courses numbered under one hundred, but beginners who desire to take three hours of work throughout the year in the department, whether they wish to continue with the subject or not, will ordinarily find it most profitable to select course 11, 21, 31, or 41 in the first semester and either 11, 21, 41, or 132 in the second semester. None of the courses in this department is open to freshmen.

Major. The minimum requirement is 24 credits including courses 31 and 132. Of these at least 15 must be taken from the one-hundred group. A thesis may be included in these 24 credits at the option of the department.

11. Elementary Logic. I, II; 3 cr. Prerequisite: Sophomore standing. Mr. Bögholt, Mr. Burkhardt, Mr. Ely, Mr. Fries, Mr. Garnett, Mr. Otto, Mr. Ramsperger, Mr. Taylor.

21. Introduction to Philosophy. I, II; 3 cr. Prerequisite: Sophomore standing. Mr. Bögholt, Mr. Burkhardt, Mr. Fries, Mr. Ramsperger.

25. PHILOSOPHY AND THE HUMAN ENTERPRISE. II; 3 cr. Prerequisite: Junior standing. Mr. Otto, Mr. Bögholt, Mr. Burkhardt, Mr. Ely, Mr. Fries.

28. PHILOSOPHY OF CONTEMPORARY LITERATURE. II; 3 cr. Prerequisite: Sophomore standing. Mr. Vivas.

31. HISTORY OF ANCIENT PHILOSOPHY. I; 3 cr. Prerequisite: Sophomore standing. Mr. Bögholt.

41. INTRODUCTORY ETHICS. I, II; 3 cr. Prerequisite: Sophomore standing. Mr. Ely.

53. PHILOSOPHY OF THE ARTS. I; 3 cr. Some problems of art, and the relation of art to other modes of human activity. Prerequisite: Sophomore standing. Mr. Vivas.

100. SENIOR THESIS. Yr; 2 cr. Staff.

106. GERMAN PHILOSOPHY IN THE 19TH CENTURY. II; 3 cr. Post-Kantian thought in Germany from Fichte through Hegel. Prerequisite: Philosophy 21, 25, 31, 132 or consent of instructor. Mr. Burkhardt.

111. SECOND-SEMESTER LOGIC. II; 3 cr. Prerequisite: Phil. 11. Mr. Bögholt.

120. PHILOSOPHY OF SCIENCE. I; 3 cr. The philosophical assumptions underlying the development of modern science and the conception of values involved in a scientific civilization. Prerequisite: Philosophy 11, 21, 25, 31, or 132. Mr. Ramsperger.

132. HISTORY OF MODERN PHILOSOPHY. II; 3 cr. Prerequisite: Philosophy 31, or consent of instructor. Mr. Ramsperger.

134. CONTEMPORARY PHILOSOPHY. I, II; 3 cr. Prerequisite: Philosophy 21, 25, 31, or 132. I, Mr. Ramsperger; II, Mr. Ely.

135. DESCARTES, SPINOZA, AND LEIBNIZ. II; 3 cr. Prerequisite: Philosophy 21, 25, 31, or 132. Offered 1940-41 and in alternate years. Mr. Ramsperger.

136. LOCKE, BERKELEY, AND HUME. I; 3 cr. Prerequisite: Philosophy 21, 25, 31, or 132. Mr. Garnett.

137. THE PHILOSOPHY OF KANT. II; 3 cr. Prerequisite: Philosophy 21, 25, 31, or 132. Offered 1941-42, and in alternate years. Mr. Garnett.

139. AMERICAN PHILOSOPHERS. I; 3 cr. Prerequisite: 3 cr. in philosophy. Mr. Otto.

141. HISTORY OF ETHICS. I; 3 cr. Prerequisite: Philosophy 21, 25, 31, 41, or 132. Mr. Garnett.

147. PHILOSOPHY OF RELIGION. II; 3 cr. Prerequisite: Junior standing or 3 credits philosophy. Mr. Garnett.

150. A PHILOSOPHY OF DEMOCRACY. I; 3 cr. Prerequisite: 3 credits in philosophy. Mr. Bögholt.

153. CURRENT PROBLEMS IN AESTHETICS. II; 3 cr. Prerequisite: Philosopy 53 or consent of instructor. Mr. Vivas.

155. REASON IN PHILOSOPHY AND LITERATURE. I; 3 cr. Prerequisite: 3 cr. in in philosophy. Mr. Garnett.

158. TYPES OF HUMANISM. II; 3 cr. Prerequisite: 3 credits in philosophy or consent of instructor. Mr. Otto.

162. IDEALISM AND PRAGMATISM. II; 3 cr. Prerequisite: Philosophy 11, 21, 25, 31, or 132. Mr. Fries.

170. FRENCH PHILOSOPHY: DESCARTES TO BERGSON. I; 3 cr. The survey will include Descartes, Voltaire, Rousseau, Comte, Taine, and Bergson. Prerequisite: Philosophy 21, 25, 31, or consent of instructor. Mr. Ely.

180. ADVANCED INDEPENDENT READING. Consult chairman of department.

200. THESIS. Yr; 2 cr. Staff.

213. LOGICAL SEMINARY. Yr; 2 cr. Mr. Otto.

240. METAPHYSICAL SEMINARY. I; 2 cr. Mr. Garnett.

247. ETHICAL SEMINARY. II; 2 cr. Mr. Garnett.

PHYSICS

PROFESSORS BREIT, INGERSOLL, *chairman*, ROEBUCK, WAHLIN; ASSOCIATE PROFESSORS HERB, STEVE; ASSISTANT PROFESSORS MACK, ROLLEFSON, WINANS; INSTRUCTOR KANNE.

In order to adapt the instruction in physics to students of different purpose and degree of preparation the following introductory courses in general physics are offered: 1, 17, 31, 51-52, 53-54, 61, and 65. Any one of these courses may be taken as an elective, but 61 is not given Letters and Science credit. The science requirements for the B.A. and Ph.B. degrees are satisfied by 1, 31, or 51-52, and in part by 17. The general Letters and Science course is given in two divisions designated as courses 1 and 31. Course 1 is arranged to meet the needs of those with different degrees of preparation. Fundamentals are treated with a minimum of mathematical emphasis. Course 31 is intended for those who need or desire a more fundamental training, and presupposes either high-school physics or freshman mathematics, or concurrent registration in the latter. It is assumed that students taking any of the courses (except 17) have had elementary high-school algebra or its equivalent. After completion of one of the introductory courses the student who is interested in the subject will normally take next 102, 103, and 104. Calculus is a prerequisite for courses 106, 112, 115, 116, 117, 118, 124, 126, and 134.

MAJOR IN PHYSICS. A minimum of 26 credits is required, which shall include the following courses: 1 or 31 (or 51-52), 102, 103, 104a, and 100. The remaining credits are to be selected from 7, 10, 104b, 106, 112, 115, 116, 117, 118, 119, 124, 126, 134. A major in physics normally includes a thesis which is usually an account of a piece of experimental work (sometimes an essay will be accepted) done largely on the student's own initiative. For those sufficiently prepared in mathematics a theoretical thesis may be offered.

For teaching major and minor see School of Education.

MAJOR IN PHYSICS-MATHEMATICS. See announcement in MATHEMATICS section.

1a. GENERAL PHYSICS. I, II; 5 cr. Mechanics, heat, magnetism, static electricity. (See also Physics 31.) Lab. fee $7.00. 2 lect; 4 hrs. lab; 1 quiz. (Repeated second semester.) Mr. Steve, Mr. Mack and staff.

1b. GENERAL PHYSICS. II, I; 5 cr. Current electricity, sound, and light. Prerequisite: Physics 1a. Lab. fee $7.00. 2 lect; 4 hrs. lab; 1 quiz. (Repeated first semester.) Mr. Steve, Mr. Mack and staff.

NOTE: For second courses see 102, 103, 104.

7. PHOTOGRAPHY. I, II; 3 cr. Elementary theory and practice. Image formation, exposure-density curve, latent image, development, positives, color. Prerequisite: Sophomore standing or consent of instructor. A knowledge of elementary physics and chemistry is recommended. Lab. fee and deposit $7.00. 1 lect; 4 hrs. lab-quiz. Mr. Mack.

10. LABORATORY ARTS. I; 1 cr. Glass blowing and shop work. Required for experimental thesis, Physics 100. Prerequisites: Senior standing and consent of instructor. Lab. fee $3.00. Mr. Roebuck.

17. SURVEY OF PHYSICS: NATURE OF THE PHYSICAL WORLD. II; 4 cr. A brief course designed to fulfill in part the non-professional science option. Open to all students excepting those who have taken a more extended introductory course in physics. 2 lect; 2 hrs. lab; 1 quiz. Mr. Winans and staff.

31. GENERAL PHYSICS. Yr; 5 cr. Prerequisite: High-school physics or freshman mathematics, or concurrent registration in the latter. Recommended for students

who expect to major in physics or chemistry. Lab. fee $7.00 a semester. 2 lect., 4 hrs. lab; 1 quiz. Mr. Roebuck and staff.

51. GENERAL PHYSICS. I; 5 cr. Mechanics, wave motion, and heat. Required of sophomores in civil, chemical, mechanical, and mining engineering. Lab. fee $7.00. 2 lect; 4 hrs. lab; 1 quiz. Mr. Ingersoll, Mr. Kanne and staff.

52. GENERAL PHYSICS. II; 5 cr. Magnetism, electricity, sound, and light. Continuation of Physics 51. Lab. fee $7.00. 2 lect; 4 hrs. lab; 1 quiz. Mr. Ingersoll, Mr. Kanne and staff.

53. MECHANICS. I; 3 cr. Required of sophomores in electrical engineering. Lab. fee $3.60. 2 lect; 2 hrs. lab; 1 quiz. Mr. Wahlin and staff.

54. HEAT, WAVE MOTION, SOUND, AND LIGHT. II; 3 cr. Continuation of Physics 53. Lab. fee $3.60. 2 lect; 2 hrs. lab; 1 quiz. Mr. Wahlin and staff.

55. ADVANCED ELECTRICAL MEASUREMENTS. I; 3 cr. Theory and use of electrical apparatus. Certain phases of modern physics are discussed and dealt with in the laboratory. Prerequisites: Physics 1b, or 31b, or 52, or 54 plus EE 1. Required of juniors in electrical engineering. Lab. fee $6.00. 1 lect; 4 hrs. lab. Mr. Wahlin and staff.

56. ADVANCED ELECTRICAL MEASUREMENTS AND LIGHT. II; 3 cr. Alternating current measurements, bridges. Elementary theory and experiments in interference, diffraction, polarization, and optical instruments. Prerequisite: Physics 55 or 104a. Required of seniors in electrical engineering. Lab. fee $6.50. 1 lect; 4 hrs. lab. Mr. Wahlin, Mr. Rollefson and staff.

61. GENERAL PHYSICS. II; 5 cr. For agricultural and home economics students and physical education men students. Letters and Science students may take this course for 4 credits only as Physics 17. Lab. fee $7.00. 2 lect; 4 hrs. lab; 1 quiz. Mr. Winans and staff.

65. GENERAL PHYSICS. Yr; 3 cr. Primarily for students in physical education, medical technology and home economics. Lab. fee $3.60. 2 lect; 2 hrs. lab; 1 quiz. Mr. Winans and staff.

91 SOUND. I; 1 cr. A non-mathematical treatment of sound primarily for those who have had no other work in physics. Students who have previously studied sound in an elementary college course are required to do extra work. Prerequisite: Sophomore standing. 1 lect-conf. Mr. Winans.

100. SENIOR THESIS. Yr; 2 cr. Lab. fee $3.00 per credit. Staff.

102. ADVANCED HEAT. I; 3 cr. Properties of real gases, elementary kinetic theory and thermodynamics. Laboratory practice in modern methods of temperature measurement, calorimetry and the thermal properties of matter. Prerequisite: Physics 1a or 31a or 51 or 54. Lab. fee $6.50. 1 lect-conf; 4 hrs. lab. Mr. Rollefson.

103. ADVANCED LIGHT. II; 3 cr. Elementary theory of thick lenses, interference, diffraction, and polarization, with corresponding laboratory work. Prerequisite: Physics 1b or 31b or 52 or 54. Lab. fee $6.50. 1 lect-conf; 4 hrs. lab. Mr. Rollefson.

104a. ADVANCED ELECTRICITY AND MAGNETISM. I; 3 cr. Electro- and magneto-statics, electro-magnetism. Accurate measurement of electrical quantities. Magnetic properties of solid bodies. Prerequisites: Physics 1b or 31b or 52 or 54 plus EE 1. Lab. fee $3.00. 2 lect-conf; 2 hrs. lab. Mr. Wahlin.

104b. ADVANCED ELECTRICITY. II; 3 cr. Alternating currents, high frequency oscillatory currents, vacuum tubes. Certain phases of modern experimental physics are discussed and dealt with in the laboratory. Prerequisites: Physics 104a and calculus or concurrent registration. Lab. fee $3.00. 2 lect-conf; 2 hrs. lab. Mr. Wahlin.

106. INTRODUCTION TO CONTEMPORARY PHYSICS. I; 2-3 cr. Elementary particles, ionization, critical potentials, absorption and fluorescence spectra, molecular spectra, radioactivity, neutrons. Mr. Winans.

112. Introduction to Atomic Structure. I; 3 cr. Nuclear atom, Bohr-Sommerfeld theory, spectral series, wave model, electron spin, vector model, complex spectra, periodic table, x-ray spectra. Mr. Mack.

115. Introduction to Thermodynamics. I; 3 cr. First and second laws, thermodynamic equilibrium, Maxwell's relations, ideal and real gases, free expansion, Joule-Kelvin effect, thermodynamic temperature scale. Mr. Roebuck.

116. Electric Circuits and Electromagnetic Waves. I; 3 cr. Theory of electric circuits, alternating currents, vacuum tube oscillators, transmission lines. Mr. Wahlin.

117. Physical Optics. II; 3 cr. Interference, diffraction, and polarization phenomena; wave surfaces; resolving power of optical instruments; magneto-optics. Offered 1941-42 and in alternate years. Mr. Ingersoll and Mr. Rollefson.

118. Kinetic Theory of Matter. I; 3 cr. Gaseous, liquid, and solid states of matter discussed in terms of the kinetic theory. Practical applications in physics, physical chemistry, and engineering. Mr. Ingersoll.

119. Radiation, Ultraviolet to Infrared. II; 1 cr. Non-mathematical lectures on radiation, including radium (gamma) rays, x-rays, ultraviolet, visible, and infrared and longer waves, their properties, physiological effects (Vitamin D) and biological applications. Prerequisite: Physics 1b or equivalent, or concurrent registration. Mr. Ingersoll.

120. Colloquium. Yr; 1 cr. Discussion of current literature with main emphasis on experimental physics. Mr. Breit.

124. Mathematical Theory of Heat Conduction. II; 2-3 cr. Fourier's series and integrals and their applications to heat conduction problems. Applications in the fields of physics, engineering, and geology. Offered 1940-41 and in alternate years. Mr. Ingersoll.

126. Recent Developments in Experimental Physics. II; 3 cr. X-rays and crystal structure, determination of electronic charge, Compton effect, thermionics, photoelectric effect. Mr. Wahlin.

134. Introduction to Molecular Spectra and Molecular Structure. II; 3 cr. Empirical observations, quantum theory, infrared and Raman spectra, electronic transitions, isotope effect, continuous spectra, dissociation, molecular constants. Offered 1940-41 and in alternate years. Mr. Winans.

200. Graduate Research. Yr; *cr. Lab. fee $6.00. Staff.

210. Introduction to Theoretical Physics. Yr; 3 cr. Brief treatment of electricity and magnetism, electromagnetic theory of light, mechanics, statistical mechanics as related to thermodynamics, quantum theory. Offered 1940-41 and in alternate years. Mr. Breit.

211. Advanced Dynamics. Yr; 3 cr. Generalized coordinates, Lagrange's and Hamilton's equations, elements of hydrodynamics and of the theory of elasticity. Offered 1941-42 and in alternate years. Mr. March.

212 Quantum Mechanics and Atomic Structure. Yr; 3 cr. Bohr-Sommerfeld theory, Correspondence Principle, dispersion, matrix mechanics, wave mechanics. Application to line spectra, band spectra, laws of radiation, specific heats. Offered 1941-42 and in alternate years. Mr. Breit.

214. Application of Thermodynamics to the Properties of Matter. II; 3 cr. Phase rule, evaporation in single- and two-component systems, fusion, sublimation, mixtures, Gibbs' model, liquefaction of gases, Nernst Heat Theorem. Offered 1941-42 and in alternate years. Mr. Roebuck.

215. Theory of Electricity. Yr; 3 cr. Mathematical treatment of the Maxwell-Lorentz theory of electrodynamics. Offered 1940-41 and in alternate years. Mr. Sokolnikoff.

221. Seminary in Quantum Mechanics. Yr; 1 cr. Discussion of current literature in theoretical physics. Mr. Breit.

229. Nuclear Physics. II; 2-3 cr. Theoretical discussion of alpha-ray emission, artificial disintegration, beta- and gamma-ray spectra. Offered 1941-42. Mr. Breit.

232. Special Topics in Theoretical Physics. I; 2-3 cr. Discussion of recent developments in quantum theory. Offered 1941-42. Mr. Breit.

244. Applications of Group Theory to Quantum Mechanics. II; 3 cr. Group theory applied to atomic and nuclear spectra, and to some of the fundamental equations of physics. Offered 1940-41. Mr. Breit.

270. Relativity, Special and General. I; 2-3 cr. Experimental basis, tensors, dynamical laws, stress energy tensor, electromagnetic mass, Einstein's theory of general relativity and its main cosmological consequences. Offered 1940-41. Mr. Breit.

Courses in electromagnetic theory of light and radiation will be offered when demand warrants.

PHYSIOLOGY

Physiology is a department of the Medical School, the announcement of which should be consulted for information relative to other courses.

17. Survey of Physiology: Functions of the Human Body. I; 4 cr. May not be taken by students who have had an elementary course in physiology. Should preferably be preceded by a course in chemistry, but open to all students. Lectures, quizzes, and demonstrations giving a general knowledge of the structure and functions of the human body. Lab. fee $3.00. Mr. Meek.

POLISH

Lecturer Zawacki, *chairman*

The elementary courses in Polish are planned to meet the needs of those who have begun the language in high school, as well as of those who take it up for the first time in college. One unit/year/of high-school work is assumed to be equivalent of 4 credits of college work, but all entering students continuing Polish are assigned to courses by placement tests given during Freshman Period. These tests may admit a student to a more advanced course, but give no extra credit toward graduation.

See page 47 for attainment tests in meeting language requirements for the bachelor's degree.

Major. 24 credits in advance of 1b. By faculty requirement, students choosing a foreign-language major must present at least 8 credits in a second foreign language.

Teaching Major and Minor. See School of Education.

Polish Club. This activity offers students opportunities to hear talks about the country whose language they are studying, to participate in programs, and to converse in Polish.

1a. First-Semester Polish. I; 4 cr. For students who have not studied Polish. Elements of phonetics and morphology. Mr. Zawacki.

1b. Second-Semester Polish II; 4 cr. Morphology of Polish continued. Simple texts. Prerequisite: Polish 1a or consent of instructor. Mr. Zawacki.

10a. Third-Semester Polish. I; 3 cr. A reading course with grammatical review. Prerequisite: Polish 1b or consent of instructor. Mr. Zawacki.

10b. Fourth-Semester Polish. II; 3 cr. A reading course with grammatical review. Prerequisite: Polish 10a or consent of instructor. Mr. Zawacki.

13. Rapid Reading. Yr; 1 cr. Journalistic Polish. Prerequisite: Concurrent registration in Polish 1b or consent of instructor. Mr. Zawacki.

31. Selected Masterpieces. Yr; 3 cr. Prerequisites: Polish 10b or knowledge of Polish and consent of instructor. Hours to be arranged. Mr. Zawacki.

80. Supervised Individual Reading. Yr; 2-3 cr. For upper-group students with grade A in Polish 10b or equivalent, or who have passed intermediate test in Polish, and desire Polish reading in their major field of study. Approval of the Dean and instructor required.

100. Senior Thesis. Yr; 2-3 cr. Well qualified seniors majoring in Polish may apply to the Chairman of the Department for permission to write a thesis.

120. Survey of Polish Literature. Yr; 2 cr. Prerequisites: Polish 10b or knowledge of Polish and consent of instructor. Hours to be arranged. Mr. Zawacki.

125. Contemporary Polish Literature. II; 3 cr. Polish 120 recommended but not required. Prerequisites: Polish 31 or advanced knowledge of Polish and consent of instructor and Dean. Hours to be arranged. Mr. Zawacki.

200. Individual Research. Yr; credit and conference hours to be arranged. For graduates only.

220. Seminary in Polish. Yr; 2 cr. For graduates only. Work chosen according to needs of students. Hours to be arranged. Mr. Zawacki.

TEACHERS' COURSE

The Teaching of Polish. See School of Education.

POLITICAL SCIENCE

Professors Gaus, *chairman*, President Dykstra, Jones, Ogg, Witte; Associate Professors Pfankuchen, Salter; Assistant Professors Beard, Ebenstein.

The courses offered by the Department of Political Science are designed to afford a well-rounded view of the nature, functions, and activities of government and to give substantial acquaintance with public affairs, state and local, national, and international. Some of them are intended primarily to furnish information requisite for intelligent citizenship, along with the mental training which forms a part of any liberal education. Others involve more specialized study, with a view to comprehensive knowledge of legislation, administration, international relations, and public law. Many contribute to training for public service. Except as qualified by the prerequisites indicated below, courses are open to students who have completed their freshman year, and all are elective. Course 7 is given every semester and, being designed for sophomores, serves as a gateway to the more advanced and specialized courses.

Major in Social Science with Political Science as a Field of Concentration. The requirements in political science when offered as a field of concentration are: (1) 25 credits, including thesis if one is written; (2) course 7; (3) other courses so selected that the total political science offering will include at least one general course in each of the first four groups enumerated below, and in the case of Group II, one course in addition to course 7. Students offering this field may be required to take courses outside of the department which are related to their political science programs.

Thesis. Students who, by their attainments in political science, and by personal characteristics, aptitudes, and interests, have shown that they can probably gain more from a thesis than from work for equivalent credits in courses, may be required by their adviser to write a thesis (2-6 cr.).

Hispanic Studies as a Field of Concentration. Students interested in this major field are referred to page 51.

I. POLITICAL THEORY

101. Introduction to European Political Thought. I or II; 3 cr. The development of political ideas, and a study of a selected number of classical political theorists. Prerequisite: Junior standing or consent of instructor. Mr. Ebenstein.

165. History of American Political Thought. I or II; 3 cr. Prerequisite: Full junior standing. Mr. Gaus.

166. Contemporary American Political Thought. I or II; 3 cr. Prerequisite: Political Science 101 or 165 or work in American history or literature. Mr. Gaus or Mr. Ebenstein.

245. History of European Political Thought. Yr; 3 cr. A study of the political thought developed out of the Greek city state, the Roman Empire, the medieval state, and the modern state. Prerequisite: Graduate standing or consent of instructor. Mr. Gaus.

II. AMERICAN GOVERNMENT AND PUBLIC LAW

7. American Government (National). I, II; 3 cr. An analysis of the chief problems of American Government. A sophomore course. Mr. Pfankuchen, President Dykstra, Mr. Gaus and others.

13. Municipal Government. I; 3 cr. The organization and politics of city government. Prerequisite: Sophomore standing. Mr. Salter.

103. Fiscal Policy. (See Economics 103). Mr. Groves.

112. Constitutional Law. I; 3 cr. The American constitution in practice as seen in the jurisprudence of the Supreme Court. Prerequisite: One course in political science or consent of instructor. Mr. Pfankuchen.

115. Law in Society. I; 3 cr. Prerequisite: Junior standing. Mr. Garrison.

122. Political Parties and Public Opinion. I, II; 3 cr. A description and critical examination of the party process in the United States. Prerequisite: Full sophomore standing. Mr. Salter.

123. American Diplomacy: Organization and Practice. I; 2 cr. State department; foreign service, diplomatic and consular; treaty-making power; principles of foreign policy. Consultation regarding entrance to the foreign service. Prerequisite: Political Science 7.

124. Taxation. (See Economics 124). Mr. Groves.

126. Legislation. II; 3 cr. Principles, procedures, and problems of statute law making. (Alternated with Political Science 139.) Prerequisite: Political Science 7. Mr. Witte.

134. Rural Local Government. I or II; 3 cr. The structure and functions of rural local government in the United States. Prerequisite: Political Science 7 or junior standing. Mr. Pfankuchen.

135. Municipal Administration. II; 3 cr. Prerequisite: Political Science 7 or 13, or senior standing. Mr. Salter.

139. State Government. II; 3 cr. Organization and functioning of the state governments with emphasis on Wisconsin. (Alternated with Political Science 126). Prerequisite: Political Science 7. Mr. Witte.

144. Police Power and Social Legislation. II; 3 cr. The position of the states under the federal constitution as determined by the Supreme Court. Prerequisite: One course in political science or consent of instructor. Mr. Pfankuchen.

146. Government and Business. (See Economics 146). Mr. Witte.

147. Government and Technology. I or II; 3 cr. Modern technology and the problems arising from its relation to the institutions and procedures of American Government. Prerequisite: One course in political science. Mr. Beard.

148. Pro-Seminary in Political Parties and Public Opinion. I, II; 2 cr. Traits and techniques of representative party leaders; their relation to public opinion and the voter. Prerequisite: Senior standing or consent of instructor. Mr. Salter.

152. Legislation for the Conservation of Natural Resources. II; 3 cr. Problems of wastage of soil, water, forests, and mineral resources are studied in the light of existing structures of law and government. Prerequisite: Junior standing or consent of instructor. Mr. Pfankuchen.

192. Country Planning. (See Economics 192). Mr. Aust, Mr. Kolb, Mr. Wehrwein.

261. Seminary in Legislation and Constitutional Law. II; 2 cr. Mr. Pfankuchen.

III. FOREIGN AND COMPARATIVE GOVERNMENT

127. Comparative Government: The British Commonwealth. I; 3 cr. An analytical study of the political institutions of the British Commonwealth, with special reference to Great Britain and Canada. Prerequisite: Political Science 7 or a course in recent European history. Mr. Ebenstein.

128. Comparative Government: Continental Europe. II; 3 cr. An analytical study of the backgrounds, techniques, and political institutions of selected Continental states. Prerequisite: Political Science 7 or 127 or a course in recent European history. Mr. Ebenstein.

143. Introduction to Public Administration. I, II; 3 cr. The rôle of administration in modern government; problems of organization, control, personnel, and finance. Prerequisite: Political Science 7. Mr. Gaus or Mr. Beard.

250. Advanced Comparative Government. Yr; 3 cr. Emphasis in the first semester is on the governments of England and the United States; in the second, on the governments of Continental Europe. Mr. Ogg.

258. Seminary in Public Administration. I, II; 2 cr. Prerequisite: Graduate standing or consent of instructor. Mr. Gaus.

IV. INTERNATIONAL LAW, ORGANIZATION, AND RELATIONS

25. Survey of World Politics. I, II; 3 cr. An introduction to international relations. Prerequisite: Sophomore standing.

118. Principles of International Law: Law of Peace. I; 3 cr. The rules governing international intercourse in time of peace, as illustrated in texts and cases. Prerequisite: One course in political science or one in modern history. Mr. Pfankuchen.

119. Principles of International Law: Law of War and Neutrality. II; 3 cr. Prerequisite: One course in political science or one in modern history. Mr. Pfankuchen.

120. American Foreign Relations (See History 120).

131. The United States and Latin America. I, II; 3 cr. Diplomatic and economic relations of the United States with the Latin American states. Prerequisite: Sophomore standing. Mr. Lloyd Jones.

132. Africa in World Politics. I; 2 cr. Imperialist rivalries in Africa and the problems of colonial administration. Prerequisite: Political Science 25 or consent of instructor.

133. The Near and Middle East in World Politics. II; 2 cr. Post-war international relations and problems of the regions indicated; special emphasis upon India. Prerequisite: Political Science 25 or consent of instructor.

137. International Organization and Diplomacy. I or II; 3 cr. Evaluation of existing agencies and procedures of international coöperation as conditioned by com-

peting national interests and policies, with special attention to the rôle of the United States. Prerequisite: Political Science 25 or consent of instructor.

138. CONTEMPORARY PROBLEMS IN INTERNATIONAL RELATIONS. II; 2 cr. A proseminar in selected aspects of international institutions and politics. Prerequisites: Senior standing and a grade of B in Political Science 25 or consent of instructor. Mr. Ebenstein.

140. FAR EASTERN POLITICS. I, II; 3 cr. Interests and policies of the United States are given special emphasis. Prerequisite: Sophomore standing. Mr. Ogg.

150. POLITICAL GEOGRAPHY. (See Geography 150.) Mr. Hartshorne.

251. SEMINARY IN AMERICAN FOREIGN POLICY, ECONOMIC AND POLITICAL. (Also in Department of Economics). Yr; 2 cr. Mr. Lloyd Jones.

255. SEMINARY IN FAR EASTERN POLITICS. Yr; 2 cr. Either semester's work may be taken separately, and, normally, graduate students should enroll in this course rather than in Political Science 140. Mr. Ogg.

259. SEMINARY IN INTERNATIONAL LAW. II; 2 cr. Mr. Pfankuchen.

260. SEMINARY IN INTERNATIONAL ORGANIZATION AND RELATIONS. I, II; 2 cr.

V. MISCELLANEOUS

100. SENIOR THESIS. Yr; 2 cr. Staff.

180. SPECIAL WORK. I, II; 2 or 3 cr. This course is intended primarily for upper-group undergraduates, but may be taken by graduates. The work is carried on individually, under the direction of a member of the staff. Open only to upper-group majors in the department by consent of instructor. See section 20, page 60.

275. SCOPE AND METHODS OF POLITICAL SCIENCE. Yr; 2 cr. Prerequisite: Graduate standing. Mr. Gaus.

PSYCHOLOGY

PROFESSOR CAMERON, *chairman*, HENMON; ASSOCIATE PROFESSOR HARLOW; ASSISTANT PROFESSORS BROGDEN, HUSBAND; LECTURER ELDER.

MAJOR. A minimum of 30 credits, including Psychology 20, 25, 106, 108, 144,, 147, 149 (or 150). *Psychology 1 is prerequisite to all other courses in psychology.*

1. INTRODUCTION TO PSYCHOLOGY. I, II; 3 cr. Development of human behavior in infant and child; adult motivation and frustration; emotions and bodily functions; intelligent behavior; learning and memory; language and thinking; personality. Prerequisite: Sophomore standing. Fee $.25. Dr. Cameron, Staff.

20. PSYCHOLOGY OF HUMAN ADJUSTMENT. II; 3 cr. Mental hygiene of the normal individual; analysis of adjustive behavior; normal repression; withdrawal behavior; fantasy, compensation and rationalization; organic factors; persistent non-adjustive and maladjustive behavior. Prerequisites: Psychology 1 and sophomore standing. Dr. Cameron.

25. EXPERIMENTAL PSYCHOLOGY. I, II; 4 cr. Lectures, demonstrations and experiments on psychological methods. Motor, sensory and nervous system functions; reflex action; emotion; perception and imagery; speech functions, personality and esthetics. Prerequisite: Psychology 1. Fee $3.00. Mr. Brogden, staff.

50. APPLIED PSYCHOLOGY. II; 2 cr. Vocational guidance and choice; selection of workers; business psychology; personnel; advertising; applications of psychology to professions. Prerequisites: Psychology 1 and sophomore standing. Mr. Husband.

100. SENIOR THESIS. Yr; 2 cr. Prerequisite: Consent of department.

106. ABNORMAL PSYCHOLOGY. I; 3 cr. Personality maladjustment and readjustment; fear, anxiety, regression; flight into illness; thinking disorders, delusions and hallu-

cinations; schizophrenia and paranoia; elation and depression; hypnosis, sleep and dreams; occult phenomena; mental hygiene. Prerequisite: Junior standing. Dr. Cameron.

108. HUMAN EMOTIONS AND MOTIVATION. I; 3 cr. Influence of emotions and motivation on goals, customs, interests, learning, reasoning, and behavior problems in children and adults. Fee $1.00. Mr. Harlow.

111. THINKING AND IMAGINATION. II; 3 cr. Concept formation; symbolic trial and error; reasoning in problem solving; biological bases of thought; habit and inspiration; emotional factors; imagination and action; creative imagination. Prerequisite: Junior standing. Dr. Cameron.

114. ADVANCED APPLIED PSYCHOLOGY. II; 2 cr. Prerequisite: Open to those who earned "B" in Course 50 or have consent of instructor. Mr. Husband.

125. EXPERIMENTAL PSYCHOLOGY OF CONDITIONING, LEARNING, AND MEMORY. I; 3 cr. Survey of experimental investigations in conditioning; acquisition of verbal and manual habits; solution of rational problems; operation of habits and of performances already learned. Prerequisite: Junior standing. Mr. Brogden.

130. STATISTICAL METHODS IN PSYCHOLOGY. I; 2 cr. Prerequisite: Junior standing. Mr. Husband.

143. THE PSYCHOLOGY OF INDIVIDUAL DIFFERENCES AND THE MEASUREMENT OF INTELLIGENCE. II; 3 cr. Individual differences in mental traits and their significance, mental inheritance, the correlation of mental abilities, and the measurement of intelligence. Prerequisite: Junior standng. Mr. Henmon.

144. THE PSYCHOLOGY OF LEARNING. I; 3 cr. The original nature of man, experimental studies of learning; mental work and fatigue. Prerequisite: Junior standing. Mr. Henmon.

147. GENETIC PSYCHOLOGY. I; 3 cr. Origins of psychological processes and general genetic principles; hereditary and early biological influences; reaction tendencies; the origin of speech; thinking and learning; child personality. Prerequisite: Junior standing. Mr. Husband.

149. ANIMAL BEHAVIOR. I; 2 or 3 cr. Maturation, motivation, and learning in animals, particularly mammals. Prerequisite: 10 credits of biology may be substituted for Psychology 1 as a prerequisite for this course. Fee $1.00. Mr. Harlow.

150. ANIMAL BEHAVIOR: THE PRIMATES. II; 2 or 3 cr. Evolution from monkey to man of intelligence, social behavior, emotion, growth and bodily structure. Prerequisite: Psychology 1 or 10 credits of biology. Fee $1.00. Mr. Harlow.

152. ANIMAL BEHAVIOR PROBLEMS. I, II; 2 or 3 cr. Individual experimental studies in animal behavior. Prerequisite: Consent of instructor. Fee $1.00 per credit. Mr. Harlow.

154. PHYSIOLOGICAL PSYCHOLOGY. II; 3 cr. The physiological mechanisms determining human behavior. Fee $1.00. Mr. Harlow.

161. MODERN VIEWPOINTS IN PSYCHOLOGY: BEHAVIORISM, GESTALT, AND PSYCHOANALYSIS. I; 3 cr. Theoretical and systematic backgrounds underlying modern viewpoints toward behavior and personality. Prerequisites: Psychology 1 and junior standing Mr. Brogden.

170. PERCEPTION. II; 3 cr. Perception of time and space; real and apparent motion; localization in the visual, auditory and somaesthetic fields. Special conditions influencing perception. Prerequisite: Junior standing Mr. Brogden.

180. INDEPENDENT READING. Yr; 1-3 cr. Prerequisites: Graduate major in psychology and consent of instructor. See section 20, page 60. Staff.

200. RESEARCH. Yr; *cr. Staff.

201. STAFF SEMINARY. Yr; 1 cr. Required of all graduate majors and minors in psychology. Dr. Cameron and staff.

225. Advanced Experimental Psychology. II; 3 cr. Lectures, discussions and individual research on selected problems. Prerequisites: Psychology 25 and 125. Fee $2.00. Mr. Brogden.

210. Seminary in Aptitude Testing. Yr; 2 cr. Prerequisite: Consent of instructor. Mr. Henmon.

218. Seminary in General Psychology. Yr; 2 cr. The subject matter changes from year to year. Selected topics in experimental psychology, the psychology of learning, or theoretical psychology. Prerequisite: Consent of instructor. Mr. Brogden.

220. Seminary in Thinking and Imagination. I; 2 cr. Prerequisite: Consent of instructor. Dr. Cameron.

221. Seminary in Abnormal Psychology. II; 2 cr. Prerequisite: Consent of instructor. Dr. Cameron.

254. Seminary in Physiological Problems and Behavior. I; 2 cr. Prerequisite: Consent of instructor. Mr. Harlow.

261. Seminary in Systematic Psychology. I; 2 cr. Prerequisites: Graduate standing and consent of instructor.

SCANDINAVIAN LANGUAGES

Professors Haugen, *chairman*, Leonard; Instructor Rölvaag.

The Department of Scandinavian, which was established in 1875, offers a group of courses designed to familiarize students with the culture of the North. The first two year-courses should enable the student to read modern Norwegian prose of average difficulty. Courses 71-82 are offered as Comparative Literature courses for those who are not familiar with the original languages; parallel courses are also offered for language credit.

Students with a speaking knowledge of some Scandinavian language are advised to consult with the chairman concerning the course best suited to their requirements.

Students wishing to take a proficiency test in Scandinavian are advised to begin Norwegian in their freshman year and should announce their intention as soon as possible. Courses 21 and 80 or equivalent preparation are required for the proficiency test. A list of requirements may be secured at the Scandinavian office, 109 Bascom Hall.

Major. For a major in Scandinavian the student must earn 18 credits beyond fourth-semester, including 4 credits of 80 or 100 and Old Norse. A reading knowledge of German is also required.

1a. First-Semester Norwegian. I; 4 cr. Open to freshmen. Mr. Haugen.

1b. Second-Semester Norwegian. II; 4 cr. Mr. Haugen.

10a. Third-Semester Norwegian. I; 3 or 4 cr. Readings in modern writers and classics, literary trends, especially in the nineteenth century. Additional credit earned by extra reading. Miss Rölvaag.

10b. Fourth-Semester Norwegian. II; 3 or 4 cr. Continuation of third-semester. Miss Rölvaag.

21. Survey of Norwegian Literature. Yr; 3 cr. From the eighteenth century to about 1900; major writers from Holberg to Hamsun. The first semester will be devoted exclusively to the prose plays of Henrik Ibsen. Offered 1940-41. Mr. Haugen.

24. Norwegian Classics. Yr; 3 cr. Dramatic and narrative masterpieces of the nineteenth century, especially Ibsen's *Peer Gynt* and the novels of Alexander Kielland. Offered 1942-43. Mr. Haugen.

27. TWENTIETH-CENTURY WRITERS. Yr; 3 cr. The first semester will be devoted to the writings of Knut Hamsun, the second to those of Sigrid Undset. Offered 1941-42. Mr. Haugen.

80. SUPERVISED INDIVIDUAL READING. 2 cr. For upper-group students with a good reading knowledge of a Scandinavian language who wish to pursue reading in some field related to their special interests. Maximum number of credits: six. Mr. Haugen.

100. SENIOR THESIS. Yr; 2 cr. May be elected in the junior or senior years after conference with the chairman. Mr. Haugen.

163. OLD NORSE. Yr; 3 cr. Mr. Leonard, Mr. Haugen.

164. INTRODUCTION TO SCANDINAVIAN LINGUISTICS. II; 3 cr. History and structure of the Scandinavian languages, with selected readings in the various languages. Open to graduate students with a reading knowledge of at least one Germanic language beside English. Offered 1940-41. Mr. Haugen.

185. SCANDINAVIAN PHONETICS. I; 3 cr. Offered in collaboration with corresponding course in other language departments. Mr. Heffner, Mr. Haugen.

200. ADVANCED INDEPENDENT WORK. 2 cr. May be elected by graduate students wishing to do research in the fields of Scandinavian language or literature. Mr. Haugen.

COURSES IN ENGLISH TRANSLATION

These courses may not be credited toward the language requirements of the University, nor toward a major. They are offered for the benefit of students who wish to acquaint themselves with the literatures of Scandinavia, but who are unable to read the original languages. Six semesters are offered in a three-year rotation.

71. LITERATURE OF THE VIKINGS. I; 2 cr. The literary monuments of ancient and medieval Scandinavia, particularly Norway and Iceland. Germanic society; the runes; Volsungs and Niebelungs; the poetic Edda; paganism and Christianity; the Sagas. Offered 1942-43. Mr. Haugen.

72. SCANDINAVIAN MYTHOLOGY AND FOLKLORE. I; 2 cr. Popular beliefs in Scandinavia from the earliest times; primitive religion; magic and witchcraft; gods and myths; Christian influences; modern folklore; legends, fairy tales, and ballads. Offered 1941-42. Mr. Haugen.

77. MODERN NORWEGIAN MASTERPIECES. II; 2 cr. Ludvig Holberg's Comedies; Björnson's novels of country life; Ibsen's *Peer Gynt*; Realism and decadence; the twentieth century. Offered 1942-43. Mr. Haugen.

78. HENRIK IBSEN: CRAFTSMAN OF THE MODERN DRAMA. I; 2 cr. Ibsen's later plays, especially his social and psychological dramas from *A Doll's House* to *When We Dead Awaken*. Discussion of themes, technique, significance in world literature. Offered 1940-41. Mr. Haugen.

81. MODERN SCANDINAVIAN FICTION. II; 2 cr. Readings from the great Scandinavian novelists: Knut Hamsun, Selma Lagerlöf, Sigrid Undset, Anderson-Nexoe, Jens Peter Jacobsen, Johan Bojer, and others. Offered 1940-41. Mr. Haugen.

82. DRAMATISTS OF THE NORTH. II; 2 cr. Dramatic literature produced by the contemporaries and successors of Ibsen: Björnson in Norway, August Strindberg in Sweden; younger dramatists: Gunnar Heiberg, Johan Sigurjonsson, Gustav Wied. Offered 1941-42. Mr. Haugen.

SOCIOLOGY AND ANTHROPOLOGY

PROFESSORS BECKER, CAMERON, GILLIN, *chairman*, KOLB MATHEWS, MCCORMICK, PERLMAN, ROSS, SEVRINGHAUS; ASSOCIATE PROFESSORS BARTON, MEKEEL, WILEDEN; ASSISTANT PROFESSORS CLARKE, COLE, GERTH, HILL, HOWELLS; INSTRUCTORS ANDERSEN, HILL, KELLOGG, PESSIN; LECTURERS BIRT, BRUBAKER, SIEBECKER.

MAJOR

For *sociology* as a field of concentration thirty credits in sociology are required, including courses 1, 2, 132, 140 and Anthropology 46. Not less than twenty additional credits must be offered within the Division of the Social Sciences, ten of which may be in this department.

For *anthropology* as a field of concentration thirty credits are also required, including two three-credit courses in sociology in addition to Anthropology 46, 106, 110 (or 101), 142 and Sociology 132. Not less than twenty additional credits selected in conference with the adviser must be offered within the Division of the Social Sciences, or in Geography, Geology, Psychology, and Zoology, ten of which may be in this department.

Certain upper-group students may substitute a thesis for four of the above required credits. This thesis may be written in any one of the fields designated in Groups I-VII as described on subsequent pages. Students not writing a thesis must offer three courses in some one of the designated fields.

SOCIAL WORK

PROFESSORS J. L. GILLIN AND HELEN I. CLARKE IN CHARGE

The Department of Sociology and Anthropology has coordinated the university courses which provide background and technical training for social work. Thus it offers students some basic training which will hasten their preparation for work in family and child welfare, juvenile protection and probation, medical and psychiatric case work, public relief, group work, and community organization. Some of these courses supply the background necessary to an understanding of society, past and present, while others provide professional training in the adjustment of the personality to social conditions on the one hand, and of social conditions to personality on the other. Proficient students are recommended to social agencies. It is suggested that students planning to enter the profession of social work plan for at least one graduate year of training in a graduate school of social work.

At the present time arrangements are made for the student who anticipates performance in one or the other of two aspects of social work: (1) family case work, (2) group work. For the first type he does 300 hours of field work in the Madison Family Welfare Association or the City Relief Department; for the second he does 300 hours of field work with the Wisconsin Union, the Neighborhood House, the Y.W.C.A., the Y.M.C.A., the Boy Scouts, or the Girl Scouts. In both instances, the field work is directed through the University. Sociology majors who elect Sociology 148 (Group Work and Recreation Practice) or Sociology 247 (Case Work Practice) are required to take Sociology 150 (Group Work and Recreation Theory) or Sociology 249 (Case Work Theory). Sociology majors taking Sociology 148 or Sociology 247 in order to graduate are required to have 124 credits including at least four additional credits in their major.

All sociology students who wish to take field work courses in their senior year are expected to take Sociology 145, 177, 178 and 190. If students carefully plan a synthesis of courses at the beginning of their sophomore year, they will have no difficulty graduating with 124 credits, fulfilling the requirements of the Sociology Department and obtaining related courses in the other social sciences.

CERTIFICATE IN SOCIAL WORK. A certificate in social work is given to graduates of the University of Wisconsin who attain proficiency during two years of supervised field work in social agencies approved by this department and who pass an examination on the theory and technique of social work.

MASTER OF SCIENCE IN SOCIAL WORK. For an outline of the requirements see the Graduate School bulletin, Division of Social Sciences.

SOCIAL WORK FOR UNDERGRADUATES. During the last three years of the undergraduate work, under the guidance of the adviser, a program should be made including such of the followng courses as are adapted to the kind of social work for which the student is preparing.

SOPHOMORE YEAR

First Semester	Credits	Second Semester	Credits
Biology 1—General biology	5	Biology 1—General biology	5
Econ. 1a—General economics	4	Econ. 1b—General economics	4
Pol. Sci. 7—American government and politics	3	Psych. 1—Introduction to psychology	3
Soc. 1—Introductory sociology	3	Soc. 2—Introductory sociology	3
Anthro. 46—Introduction to anthropolgy	3		

JUNIOR YEAR

Soc. 25—Rural life	3	Soc. 144—Capitalism and socialism	3
Soc. 132—Introductory social statistics	3	Soc. 160—Marriage and family	3
Soc. 139—Social psychology	3	Soc. 161—Criminology and penology	3
Soc. 141—Poverty and dependency	3	Soc. 197—Personality and social adjustment	3
Soc. 145—Introduction to the field of social work	2	Psych. 106—Abnormal psychology	3
Zool 1.—Animal biology	5	Psych. 120—Child development: The psychology of adolescence	3
Physiol. 17—Survey of physiology	4	Econ. 120—Social insurance	3
Pol. Sci. 13—Municipal government	2		
Pol. Sci. 134—Rural local government	2		
Econ. 122—Labor problems	3		
Econ. 171—Personnel management	3		
Psych. 119—Child development	3		

SENIOR YEAR

Soc. 125—Rural social trends	3	Soc. 127—Rural community organization	2
Soc. 140—Principles of sociology	3	Soc. 148*—Group work and recreation practice	3
Soc. 148*—Group work and recreation practice	3	Soc. 150—Group work and recreation theory	2
Soc. 150—Group work and recreation theory	2	Soc. 178—Theories of community organization	2
Soc. 162—Child welfare	2	Soc. 190—Medical aspects of social work	2
Soc. 168—Probation and parole	3	Soc. 247*—Case work practice	3
Soc. 177—Social legislation	2	Soc. 249—Case work theory	2
Soc. 247*—Case work practice	3	Econ. 124—Taxation	3
Soc. 249—Case work theory	2	Econ. 149—Government and labor	2
Econ. 123—Labor legislation	3	Educ. 181—Vocational and educational guidance techniques	2-3
Pol. Sci. 143—Introduction to public administration	3		
Pol. Sci. 139—State government	3		

COURSES OF INSTRUCTION

I. SOCIOLOGICAL THEORY

1. INTRODUCTORY SOCIOLOGY. I; 3 cr. Interrelations of personality, social structure, and culture; major social processes; trends of modern society. Prerequisite: Sophomore standing. Fee: $.50. Mr. Becker and staff.

2. INTRODUCTORY SOCIOLOGY. II; 3 cr. Population, crime, disease, marriage and divorce, women and children in industry, immigration, poverty, insanity, etc., as they reveal

*Which of these two is selected depends upon the field for which the student is preparing.

underlying social maladjustments. Prerequisite: Sophomore standing. Fee: $.50. Mr. Gillin and staff.

100. SENIOR THESIS. Yr; 4 cr. Staff.

139. SOCIAL PSYCHOLOGY. I; 3 cr. (See Group VII). Mr. Gerth.

140. PRINCIPLES OF SOCIOLOGY. I; 3 cr. The social sciences and sociology; value-judgments; methodology; social processes and structures; applications of sociological analysis. Prerequisite: Senior standing or consent of instructor. Fee: $.50. Mr. Becker.

144. CAPITALISM AND SOCIALISM. II; 3 cr. (This course is listed elsewhere as Economics 144.) Capitalism, unionism, socialism, and individualistic anti-capitalism, each viewed under the headings of conditions, theories, and movements. Prerequisite: For sociology majors, Sociology 1 and 2, or senior standing. Mr. Perlman.

160. MARRIAGE AND FAMILY. II; 3 cr. Nature of the family. Social practices bearing on marital relations; means for ensuring family integrity. Prerequisite: For sociology majors, one course in sociology or anthropology; for juniors, an elementary course in anthropology, psychology, sociology or zoology; or senior standing. Fee: $.50. Mr. Hill and various lecturers, including Mr. Becker, Mr. McCormick and Mr. Sevringhaus.

163. MODERN POPULATION PROBLEMS. I; 3 cr. Population growth and composition in relation to natural resources, cultural achievement, migration and war. Birth control and differential fertility. Prerequisite: Junior standing. Offered 1942-43. Mr. McCormick.

174. THE MODERN CITY. I; 3 cr. Types of cities, growth, structure. The city as center of dominance over trade area and hinterland. Urban vs. rural institutional and personality patterns, folkways, mores. Prerequisite: Junior standing. Mr. McCormick.

176. HISTORY OF SOCIAL THOUGHT. II; 3 cr. Survey of man's sociologically relevant ideas. Analysis of the social and cultural contexts in which these ideas arise; estimates of contemporary relevance and validity. Prerequisites: Sociology 1, plus 2 or 46 or 139 or consent of instructor and junior standing. Mr. Becker.

180. INDEPENDENT READING IN SOCIOLOGY OR ANTHROPOLOGY. Yr; *cr. Reading may be in any field for which student has an adequate background. Open only to upper-group majors in the department by consent of instructor. See section 20, page 60.

234. STATISTICS IN POPULATION RESEARCH. II; 3 cr. (See Group VI). Mr. McCormick.

239. ADVANCED SOCIAL PSYCHOLOGY. I; 2 cr. (See Group VII). Mr. Becker.

255. SEMINARY: GROUP CONFLICT. I; 2 cr. Not offered 1940-41. Mr. Ross.

257. SOCIAL INSTITUTIONS. I; 2 cr. Analysis of institutional structure and change. An attempt is made to demonstrate that selected culture cases yield conclusions of general validity. Prerequisites: Graduate standing and consent of instructor. Offered 1941-42. Mr. Becker.

263. MIGRATION, MOBILITY, AND SOCIAL CHANGE. I; 2 cr. Study of forms of migration. Culture case study method is used and problems of social change are stressed. Prerequisites: Graduate standing and consent of instructor. Not offered 1940-41. Mr. Becker.

264. SEMINARY: TREND OF MARRIAGE AND FAMILY RELATIONSHIPS THE WORLD OVER. I; 2 cr. Is the goal a single pattern or several? Forces promoting or withstanding change. Prerequisite: Graduate standing or consent of instructor. Offered 1940-41 and in alternate years. Mr. Ross.

279. SYSTEMATIC SOCIOLOGY. II; 2 cr. Coordination of current psycho-sociological and sociological theories and methods. Research projects receive much attention. Prerequisites: Sociology 140 or equivalent, plus graduate standing and consent of instructor. Mr. Becker.

280. READING AND RESEARCH IN SOCIOLOGY OR ANTHROPOLOGY. Yr; *cr. Work suited to individual graduate students may be arranged; this may be in conjunction with dissertation. Prerequisite: Advanced graduate standing. Staff.

II. ANTHROPOLOGY

46. INTRODUCTION TO ANTHROPOLOGY. I; 3 cr. The study of man; his past history and present physical and cultural divisions as represented by civilized and primitive peoples. Prerequisite: Sophomore standing. Mr. Mekeel and staff.

101. AMERICAN ARCHEOLOGY. II; 3 cr. The problems of pre-Columbian cultures in the New World with particular reference to those of the Pueblo, Aztec, Maya, and Inca peoples. Prerequisite: Anthropology 46 or consent of instructor. Mr. Howells.

102. PEOPLES OF AFRICA. I; 3 cr. Ancient and modern cultures of Africa, their origins and development. Prerequisite: Anthropology 46 or consent of instructor. Offered 1941-42. Mr. Howells.

103. SOUTHH AMERICAN INDIANS. I; 3 cr. Past and present indigenous cultures of South America and the anthropological problems presented. Prerequisite: Anthropology 46 or consent of instructor. Offered 1941-42. Mr. Mekeel.

104. PEOPLES OF ASIA. II; 3 cr. A survey of modern and ancient cultures of Asia. Prerequisite: Anthropology 46 or consent of instructor. Mr. Mekeel.

105. NORTH AMERICAN INDIAN. I; 3 cr. Origins of the American Indian; development of his culture and descriptions of selected groups. Prerequisite: Anthropology 46 or consent of instructor. Mr. Mekeel.

106. INTRODUCTION TO ETHNOLOGY. II; 3 cr. Historical cultures of the world; their constributions; interrelations and characteristic institutions. Prerequisite: Anthropology 46 or consent of instructor. Mr. Mekeel.

107. PRIMITIVE RELIGION. II; 3 cr. A study of the origins, elements and forms of primitive religion, based on selected examples. Prerequisite: Junior standing or consent of instructor. Mr. Howells.

109. PEOPLES OF OCEANIA. I; 3 cr. Historic cultures of Australia, Melanesia, Indonesia, and Polynesia, with their origins and interrelations. Prerequisite: Anthropology 46 or consent of instructor. Mr. Howells.

110. OLD WORLD ARCHAEOLOGY. II; 3 cr. The development of culture from earliest beginnings to the historic period, as seen through the known remains of the Stone, Bronze, and Iron Ages. Prerequisite: Anthropology 46 or consent of instructor. Offered 1941-42. Mr. Mekeel.

111. NATURE AND FUNCTION OF LANGUAGE. I; 3 cr. Prerequisite: Junior standing. Not offered 1940-41.

113. THE INDIAN LANGUAGES OF NORTH AMERICA. I; 3 cr. Prerequisite: Sociology 111 and English 185 or consent of instructor. Not offered 1940-41.

114. LINGUISTIC STRUCTURE. I; 3 cr. Prerequisite: Sociology 111 or consent of instructor. Not offered 1940-41.

115. INDUCTIVE PHONEMICS. I; 1 cr. May ordinarily be taken only concurrently with English 185 (Introduction to Phonetics), with which it forms a three-credit group. Not offered 1940-41.

142. INTRODUCTION TO RACIAL HISTORY. I; 3 cr. Human evolution; man as a mammal, primate, and anthropoid; ancient man and the formation and spread of races. Prerequisite: Junior standing or consent of instructor. Mr. Howells.

143. ADVANCED PHYSICAL ANTHROPOLOGY. II; 3 cr. Variation of man and their significance, with special training in laboratory methods of observation and analysis. Prerequisite: Anthropology 142 or consent of instructor. Mr. Howells.

204. Anthropological Problems. Yr; 2 cr. Discussions of current anthropological literature and methods, and work on assigned problems. Prerequisite: Graduate standing or consent of instructor. Mr. Howells, Mr. Mekeel.

213. Culture Contacts and Cultural Change. II; 2 cr. Growth of culture and the effects upon the adherents of other cultures of intimate contact with modern civilization. Prerequisite: Graduate standing or consent of instructor. Mr. Mekeel.

214. Language and Culture. II; 2 cr. Interrelations of culture and language. Forms of thought; influence of language on culture and *vice versa*; role in personality organization and in social control. Prerequisites: Graduate standing and consent of instructor. Not offered 1940-41.

216. Field Methods in Linguistics. II; 2 cr. Prerequisite: Sociology 111 or consent of instructor. Not offered 1940-41.

217. Races and Culture. I; 2 cr. Problems in the study of mankind; race and environment; theories of race formation; race mixture; and cultural problems involved. Prerequisite: Graduate standing or consent of instructor. Mr. Howells.

III. SOCIAL PATHOLOGY

141. Poverty and Dependency. I; 3 cr. Extent of poverty and pauperism; causes; historical methods of dealing with dependents; special classes like the aged, the insane, epileptic, dependent children, the unemployed; preventive agencies and methods. Prerequisites: For sociology majors, Sociology 1 and 2 or concurrent registration in Sociology 1; for others, junior standing or concurrent registration in Sociology 1. Fee: $.50. Mr. Gillin.

161. Criminology and Penology. II; 3 cr. Crime and criminals; extent and cost; making of the criminal; history of punishment; modern penal institutions; machinery of justice. Prerequisites: For sociology majors, Sociology 1 and 2, or concurrent registration in Sociology 2; for others, junior standing or concurrent registration in Sociology 2. Fee: $.50. Mr. Gillin.

165. The Use of Scientific Methods in the Identification of the Criminal. II; 2 cr. Lectures and demonstrations illustrating the various modern techniques used in criminal identification. Prerequisite: Sociology 161 or junior standing. Mr. Mathews

168. Probation and Parole. I; 3 cr. Probation and parole in individualizing treatment of prisoner. Relation to courts and correctional institutions. The probation and parole officer—Selection and training, qualifications, and function. Prerequisites: Sociology 161 and senior or graduate standing, or consent of instructor. Fee: $.50. Mr. Gillin.

178. Theories of Community Organization. II; 2 cr. (See Group IV). Miss Clarke.

197. Personality and Social Adjustment. II; 3 cr. (See Group VII). Mr. Becker, Mr. Gerth.

235. Research in Social Pathology. II; 3 cr. Qualitative and quantitative methods of research with reference to problems in the field of crime and its treatment. Relationships between the case study and statistics. Prerequisites: Sociology 132 and 2 or equivalents. Offered 1941-42. Mr. Gillin and Mr. McCormick.

247. Case Work Practice. Yr; 3 cr. (See Group IV). Mrs. Siebecker.

249. Case Work Theory. Yr; 2 cr. (See Group IV). Miss Clarke.

256. Development of Correctional Policies. II; 2 cr. Theories and policies; the evolution of punishment; classical theory of punishment; the Italian School; modern theories and policies. Prerequisite: Graduate standing or consent of instructor. Mr. Gillin.

259. Development of Poor Relief Policies. I; 2 cr. Development from ancient times to the present. Modern methods and policies of relief; relief of special classes:

children, aged, blind, unemployed, disabled. Preventive policies. Prerequisite: Graduate standing or consent of instructor. Mr. Gillin.

265. PUBLIC WELFARE ADMINISTRATION. II; 2 cr. (See Group IV). Miss Clarke.

IV. SOCIAL WORK

145. INTRODUCTION TO THE FIELD OF SOCIAL WORK. I; 2 cr. Survey of fields and methods of social work. For social work students and those preparing for allied professions as law, medicine, ministry, teaching. Field trips arranged. Prerequisite: Junior standing. Miss Clarke.

148. *GROUP WORK AND RECREATION PRACTICE. Yr; 3 cr. Ten hours a week of field work at Wisconsin Union, Neighborhood House, Y.W.C.A., Y.M.C.A., Boy Scouts, Girl Scouts. Students act as assistant leaders for recreational and educational groups. Prerequisites: For sociology majors, senior standing and consent of instructor; for students doing field work at the Union, junior standing and consent of instructor; concurrent registration in Sociology 150. Field practice to be arranged. Miss Clarke, Mr. Hill and staff.

150. *GROUP WORK AND RECREATION THEORY. Yr; 2 cr. Importance and meaning of group experience to individuals and place of individuals in groups. Students are required to keep records of their leadership activities. Prerequisite: Concurrent registration in Sociology 148 or consent of instructor. Miss Clarke.

162. CHILD WELFARE. I; 2 cr. Problems of dependent, defective and delinquent children, methods of study and treatment utilized by Federal, state and local governments and by private agencies. Prerequisites: Senior standing and consent of instructor. Miss Brubaker.

166. ADMINISTRATION AND COORDINATION OF SOCIAL AGENCIES. II; 2 cr. Relations between public and private agencies; financing methods with especial reference to community chests. Prerequisites: Senior standing, preferably some social work experience, and consent of instructor. Mr. Birt.

177. SOCIAL LEGISLATION. I; 3 cr. Statutes and court decisions on marriage, divorce, adoption, illegitimacy, poverty, etc. The reciprocal effects of law and social work. Prerequisite: Sociology 141, senior standing, or consent of instructor. Fee: $1.00. Miss Clarke.

178. THEORIES OF COMMUNITY ORGANIZATION. II; 2 cr. Study of social forces in the community; functions and methods of social agencies. Field studies through courtesy of Madison Community Union. Prerequisites: Senior standing, preferably some social work experience and consent of instructor. Miss Clarke.

190. MEDICAL ASPECTS OF SOCIAL WORK. II; 2 cr. Study of the more common diseases, as tuberculosis, cancer, venereal diseases, children's difficulties, etc., with emphasis upon community problems. Designed for social work students. Prerequisite: Senior or graduate standing and consent of instructor. Limited enrollment. Dr. Cole and staff.

247. *CASE WORK PRACTICE. Yr; 3 cr. Ten hours a week of field work in Madison case-work organizations. Students interview clients and collateral sources, evaluate information secured, and formulate plans of treatment. Prerequisite: Graduate or senior standing, and consent of instructor; concurrent registration in Sociology 249. Field practice and conferences to be arranged. Mrs. Siebecker.

249. *CASE WORK THEORY. Yr; 2 cr. Methods and values of case work. Study of records illustrating various problems, as illegitimacy, unemployment, domestic disharmony, juvenile delinquency. Prerequisite: Section a: Graduate or senior standing and

*Sociology majors who are admitted to Sociology 148 (Group Work and Recreation Practice) or to Sociology 247 (Case Work Practice) and required to take Sociology 150 (Group Work and Recreation Theory) or Sociology 249 (Case Work Theory) and to have 124 credits in order to graduate, including at least four additional credits in their major.

consent of instructor. Designed primarily for students not taking field work or expecting to go into social work. Section b: Concurrent registration in Sociology 247. Fee: $1.00 first semester. Miss Clarke. (See footnote p. 175.)

250. PSYCHIATRY FOR SOCIAL WORKERS. II; 2 cr. Introduction to field of nervous and mental diseases. Biological and psychological foundations of human conduct with special reference to vital life experiences of birth, adolescence, marriage, parent-child relationships, etc. Causes, diagnosis, treatment methods, and social implications of neuroses, psycho-neuroses, organic and functional psychoses. Prerequisite: Social work experience. (Limited enrollment, consult Miss Clarke). Dr. Cameron, Dr. Pessin.

265. PUBLIC WELFARE ADMINISTRATION. II; 2 cr. Administrative provisions for care of dependent, defective, delinquent persons. Analysis of Federal, state and local welfare structure, finance, personnel, etc. Prerequisite: Graduate standing or Sociology 177 and consent of instructor. Miss Clarke.

V. RURAL SOCIOLOGY

This is a duplicate listing of those courses offered by the Department of Rural Sociology which may be elected by majors in Sociology and other qualified students.

25. RURAL LIFE. I; 3 cr. The study of rural society; its groups as families, neighborhoods, villages, interest groups, town-country and rural-urban relations; its people; its social institutions. Prerequisite: Sophomore standing. Mr. Kolb.

125. RURAL SOCIAL TRENDS. I; 2 cr. Advanced course in study of rural society through systematic examination of important source materials from Europe and America; recent findings in rural social trends. Prerequisite: Rural Sociology 25 or equivalent or senior standing. Mr. Barton.

126. RURAL STANDARDS OF LIVING. II; 2 cr. Study of main elements composing standards of living, growth of a consumer consciousness, and governmental and cooperative agencies which give it expression. Prerequisite: Sociology 1, 2, 25 or equivalent. Mr. Barton.

127. RURAL COMMUNITY ORGANIZATION. II; 2 cr. History of rural community and its social organization; principles, including leadership and processes of cooperation and conflict; agencies, studies of selected cases. Prerequisite: Rural Sociology 25 or graduate standing. Mr. Wileden.

192. RURAL PLANNING. II; 3 cr. Principles of rural-regional planning applied to a county. Only one credit of this course may be counted toward a major in Rural Sociology. Prerequisite: Consent of instructors. Mr. Aust, Mr. Kolb, and Mr. Wehrwein.

200. RESEARCH AND THESIS. Yr; *cr. Prerequisite: Advanced graduate standing.

225. SEMINARY IN RURAL SOCIAL RESEARCH. Yr; 2 cr. Scope and method in current research: community organization, standards of living, population, farmers' organizations, social institutions, rural government. Prerequisites: Graduate standing and consent of instructor. Mr. Kolb.

VI. STATISTICS

132. INTRODUCTORY SOCIAL STATISTICS. I, II; 3 cr. Introduction to the logic and use of statistics as a method of analyzing sociological problems. Prerequisite: Major in sociology or consent of instructor. Fee: $1.50. Mr. McCormick.

163. MODERN POPULATION PROBLEMS. I; 3 cr. (See Group I). Mr. McCormick.

174. THE MODERN CITY. I; 3 cr. (See Group I). Mr. McCormick.

232. ADVANCED SOCIAL STATISTICS. Yr; 3 cr. Theory of sampling; chi-square test; analysis of variance. Curve fitting; non-linear, multiple, partial, qualitative correlation; time series (briefly). Problems from sociology and related fields. Prerequisites: Graduate standing and Sociology 132 or equivalent. Mr. McCormick.

233. Research in Social Psychology. I; 3 cr. (See Group VII). Mr. McCormick and Mr. Gerth.

234. Statistics in Population Research. II; 3 cr. Critical examination of basic data. Refined measures of fertility and population increase. Differential fertility, post-censal population estimates, vital phenomena and business cycles. Prerequisites: Sociology 132 and preferably 163. Mr. McCormick.

235. Research in Social Pathology. II; 3 cr. (See Group III). Offered 1941-42. Mr. McCormick and Mr. Gillin.

236. Statistical Social Research. II; 3 cr. Definition of problem, previous research. Preparation of questionnaires, instructions, tables. Preliminary trials, revision. Organization of field work, editing returns. Hand, machine methods. Analysis, report writing. Prerequisites: Graduate standing, Sociology 132 or equivalent, and consent of instructor. Offered 1942-43. Mr. McCormick.

VII. SOCIAL PSYCHOLOGY

139. Social Psychology. I; 3 cr. Place of emotions, habits, and of fantasy and objective thinking in social behavior. Prerequisites: Psychology 1 and junior standing, or junior major in sociology Fee $.50. Mr. Gerth.

197. Personality and Social Adjustment. II; 3 cr. Personality treated from the angle of group participation in the family, play group, gang, neighborhood, school, church, etc., literature examined critically. Prerequisites: Psychology 1 or Sociology 139, and junior standing. Fee: $1.50. Mr. Becker, Mr. Gerth.

213. Culture Contacts and Cultural Change. II; 2 cr. (See Group II). Mr. Mekeel.

214. Language and Culture. II; 2 cr. (See Group II). Not offered 1940-41.

233. Research in Social Psychology. I; 3 cr. Qualitative and quantitative methods of research on selected problems in social psychology. Detailed analysis of relationships between case study and statistics in personality and social attitudes. Prerequisites: Sociology 132 and either 139 or 197, or equivalents. Offered 1941-42 and in alternate years. Mr. Gerth and Mr. McCormick.

237. Public Opinion and Leadership. I; 2 cr. A social-psychiological and sociological analysis of propaganda, lobby and pressure groups, and censorship. Role of leader in public opinion and other forms of social control. Prerequisite: Sociology 139 or its equivalent or consent of instructor. Mr. Gerth.

239. Advanced Social Psychology. I; 2 cr. The theoretical and systematic foundations and social psychology. Prerequisite: Consent of instructor. Mr. Becker.

297. Personality Problems. II; 2 cr. Selected topics which relate the development of personality to social-cultural environment, especially in relation to problems of the family, school, delinquency, and adult maladjustment. Prerequisites: Graduate standing and consent of instructor. Mr. Becker, Mr. Gerth.

Graduate students majoring in Group VII should consult their major professor regarding the following courses: Psychology 106: Abnormal Psychology; Psychology 108: Human Emotions and Motivation; Education 119: Child Development; Education 120: Child Development, The Psychology of Adolescence; Neuropsychiatry 112: Problems in Neuropsychiatry; Zoology 122: Endocrinology.

SPANISH AND PORTUGUESE

Professors Adams (visiting), Berkowitz, Cool, Ortega; Associate Professor Herriott, *chairman*; Assistant Professors Kasten, Lyon, Neale-Silva; Instructor Oelschläger.

Nature of the Courses. The elementary courses have been planned to meet the needs of students who take up the language for the first time at the University of Wisconsin,

as well as of those who have begun the study in high school. The regular second-year courses are 10a and 10b, in which emphasis is placed on the acquisition of a reading knowledge of the language. The second-year practice courses are 15 and 16, usually taught by native Spanish instructors and intended to supplement the training offered in 10a and 10b. The regular third-year course is 21, comprising reading of representative masterpieces with a background of literary history. The third-year practice courses are 25 and 27, which are usually taught by native Spanish instructors and are intended to supplement the training offered in 47 and 21. Course 47 is a special third-year course intended to be introductory to the study of Spanish and Spanish-American civilization. Spanish 55 (Comp. Lit. 55) is a course offering an approach to Spanish and Portuguese literature to students without the knowledge of the languages. Courses in elementary Portuguese are offered, and more advanced work will be established when the demand arises. Portuguese is important in comparative study of the Romance languages, and of practical value as the language of Brazil. The advanced practice courses are 116, 117, and 190, for which the prerequisite is three years of college Spanish; 116 offers training in general advanced composition and conversation, and 117 emphasizes the use of the language in commerce and industry.

Several of the advanced courses in literature and civilization are given in Spanish. A careful rotation is established so that students specializing in literature may have adequate instruction in all genres and epochs. The philological courses are intended for graduate students, but 141 is open to undergraduates. In special cases, undergraduates may be admitted to advanced philological work with the consent of Professor Kasten.

New students are assigned to classes on the basis of their ratings in a placement test, as described in section 10, page 47. The foreign-language requirements for the B.A. degree are set forth in section c, page 61.

Major. 32 credits, of which at least 2 must be in composition courses under 100, 6 in Spanish 21, and 9 in courses of the 100-group. In the 100-group courses a minimum of 2 credits must be in language (116, 117, 141, 190) and a minimum of 4 must be in literature. Well qualified students may apply to the Chairman of the Department for permission to write a thesis.

By faculty requirement students choosing a foreign-language major must present at least eight credits in a second language taken either in high school or college.

All who intend to specialize in Spanish are advised to elect related courses in classical and modern languages and literatures, comparative literature, history, philosophy, and art history and criticism. Courses especially recommended are introduction to phonetics (English 185), the nature and function of language (Sociology 111), linguistic structure (Sociology 113) and the courses included in the field of Hispanic Studies.

Teaching Major and Minor. See School of Education.

Hispanic Studies as a Field of Concentration. Students interested in this major field should consult page 51.

Major in International Relations. (Specialization in the Latin-American region.) Students interested in this major field should consult page 53.

Foreign News Service. This branch of journalism, which emphasizes the Hispanic field, is described in the special bulletin of the School of Journalism.

Seminary of Medieval Spanish Studies. A well-equipped seminary for independent research in this field, founded by the late Professor Solalinde, is now under the direction of Professor Kasten. It has separate quarters at 1212 West Johnson Street.

Review Conference. The department has organized a monthly review conference at which members of the faculty and graduate students present and discuss reviews of the late important books in the Hispanic field.

Lectures on Hispanic Life and Civilization. The department presents every year a series of eight open lectures on phases of Spanish and Spanish-American life and civilization. A cycle is organized comprising four years, with different topics, so that

the students may receive the greatest benefit from this supplementary instruction during their entire undergraduate course. To give the lectures wide range of content and professional competence the lecturers are chosen from different departments of the University, and guest speakers of reputation are invited from other institutions of learning.

SPANISH PERIODICAL. To encourage original work in the language the Department edits every semester a Spanish periodical, "La Alhambra," which is written entirely by students.

SPANISH CLUB. The Club Cervantes meets once a month during the year and presents interesting programs. Each semester and summer session a Spanish play is staged, thus affording an opportunity to the student for participating in Spanish dramatics.

ANTONIO G. SOLALINDE SCHOLARSHIP. Through the efforts of Psi chapter of Sigma Delta Pi (national Spanish honor society), a scholarship in memory of the late Professor Solalinde has been established. It carries a compensation of $50 per semester, to be granted on the basis of scholastic merit and financial need. For further information, apply to the Chairman of the Department.

SPANISH

1a. FIRST-SEMESTER SPANISH. I, II; 4 cr. For students who have had no Spanish. Sr. Neale-Silva and staff.

1b. SECOND-SEMESTER SPANISH. I, II; 4 cr. Prerequisite: Spanish 1a or one year of high-school Spanish. Sr. Neale-Silva and staff.

10a. THIRD-SEMESTER SPANISH. I, II; 3 cr. Prerequisite: Spanish 1b or two years of high-school Spanish. Sr. Neale-Silva and staff.

10b. FOURTH-SEMESTER SPANISH. I, II; 3 cr. Prerequisite: Spanish 10a or three years of high-school Spanish. Sr. Neale-Silva and staff.

15. ELEMENTARY CONVERSATION. Yr; 1 cr. Prerequisite: Spanish 1b or equivalent. Not open to students who have had Spanish 10b. Mr. Lyon and staff.

16. ELEMENTARY COMPOSITION, CONVERSATION, AND GRAMMAR REVIEW. Yr; 2 cr. Prerequisite: Spanish 1b or equivalent. Not open to students who have had 10b. Strongly recommended as preparation for 25 and 116. Mr. Lyon and staff.

25. INTERMEDIATE COMPOSITION AND CONVERSATION. Yr; 2 cr. Prerequisite: Two years of Spanish preferably including at least one semester of 16. Not open to students with three years of college Spanish. The regular third-year Spanish course, recommended to all students, is Spanish 21. For training in conversation and composition, students with two years of college Spanish should enter 25, and with three years of college Spanish, 116 of 117. Mr. Lyon, Sr Neale-Silva, Mr. Oelschlager.

27. SPANISH COMMERCIAL LETTER WRITING. I; 2 cr. Mr. Cool.

ADVANCED PRACTICE COURSES

(Prerequisite: Three years of college Spanish with at least one semester of 25 recommended.)

116. COMPOSITION, AND GRAMMAR REVIEW. I; 2 cr. Sr. Ortega.

117. COMMERCIAL AND INDUSTRIAL LANGUAGE PRACTICE IN HISPANIC COUNTRIES. II; 2 cr. Sr. Ortega, Mr. Oelschläger.

190. SPANISH PHONETICS. I; 2 cr. Theory of Spanish sounds with practical training in pronunciation. Mr. Lyon.

TEACHERS' COURSE

TEACHING OF SPANISH. See School of Education.

PHILOLOGY

141. Spanish Historical Grammar. Yr; 2 cr. An introductory course to Spanish philology, phonology, morphology, and syntax. Prerequisite: Three years of college Spanish. Offered 1941-42 and in alternate years. Mr. Herriott.

201. Methods of Investigation and Bibliographical Information. Yr; 2 cr. Required of candidates for the doctorate who have not had this training elsewhere. Spanish paleography, and problems of textual criticism and bibliographical research. Offered in 1941-42 and in alternate years. Mr. Kasten.

210. Philological Seminary: Old Spanish. Yr; 2 cr. Offered 1940-41 and in alternate years. Mr. Kasten.

CIVILIZATION

47. Spain and Spanish America of Today. Yr; 2 cr. Current periodicals; supplementary readings and lectures on the social, economic, and political conditions in Spain and Spanish America. Illustrated with lantern slides. Prerequisite: Spanish 10b. I, Spain, Sr. Ortega; II, Spanish America, Sr. Neale-Silva.

150. Spanish Civilization. 2 cr. Conducted in Spanish; illustrated with lantern slides. Prerequisite: Spanish 21. Sra. Solalinde.

151. Spanish-American Civilization. II; 2 cr. Conducted in Spanish; illustrated with lantern slides. Prerequisite: Spanish 21. Offered 1940-41 and in alternate years. Sr. Neale-Silva.

Reporting Hispanic Affairs. I, Spain, Mr. Cool: II, Spanish America, Sr. Neale-Silva. See Journalism 121. Does not carry credit in Spanish.

LITERATURE

Spanish 21 is prerequisite to all 100-courses in Spanish literature.

21. Elementary Survey. Yr; 3 cr. Introduction to the study of Spanish literature. Representative masterpieces in class, assigned readings, discussion of the literary aspects of the works read, and literary history. Prerequisite: Spanish 10b or equivalent. Mr. Cool (Chairman), Mr. Berkowitz, Mr. Oelschläger.

80. Supervised Individual Reading. Yr; 2 cr. For upper-group students who have passed the "intermediate" test in Spanish, or have received a grade of B in Spanish 10 or equivalent, and desire further practice in reading Spanish in subject matter related to their major field of study. Texts of general and not too technical character are to be agreed upon in consultation with the student's major professor. Each individual arrangement requires the approval of the Dean and of the Chairman of the Department of Spanish and Portuguese. Not open to Spanish majors.

100. Thesis. Yr; 2 cr. Students must register with the Chairman of the Department for individual thesis. Mr. Herriott and staff.

102. Spanish Contemporary Literature. Yr; 3 cr. A study of representative authors (novel, drama, poetry and essay) of the "generation of '98"; and also of the new literature since the war. Characterization of the currents of modern Spanish thought. Offered 1941-42 and in alternate years. Sr. Ortega.

103. Spanish Lyric Poetry. II; 3 cr. Offered 1939-40. Mr. Lyon.

104. Cervantes and Other Spanish Prose Writers of El Siglo De Oro. Yr; 2 cr. Cervantes' works and their relation to the literature of his times. Offered 1941-42 and in alternate years. Mr. Cool.

105. Modern Spanish Drama. Yr; 3 cr. The development of eighteenth and nineteenth century drama; its chief representatives; its social and historical background. Offered 1941-42 and in alternate years. Mr. Lyon.

107. Survey of Spanish Drama from Its Origins to the End of the Golden Age. Yr; 3 cr. Development of religious drama, farce, and the national *comedia*, with special attention to great representatives of the latter and their influence on European literature. Mr. Lyon.

122. Modern Spanish Novelists and Essayists. Yr; 3 cr. Significant periods and figures in the Spanish novel during the XIXth century; Spanish national life as interpreted by leading essayists of the XVIIIth and XIXth centuries. Offered 1940-41 and in alternate years. Mr. Berkowitz.

126. Spanish-American Literature. Yr; 2 cr. Survey of Spanish-American literature from Colonial times to the present with special emphasis on the *modernista* poets and the main contemporary prose writers. Offered 1941-42 and in alternate years. Sr. Neale-Silva.

131. General Survey of Spanish Literature. Yr; 3 cr. Offered 1940-41 and in alternate years. Staff.

148. Spanish Renaissance. Yr; 2 cr. A study of the most significant authors and their works from the *Celestina* to Cervantes. Offered 1940-41 and in alternate years. Mr. Herriott.

180. Advanced Independent Reading. For upper-group majors complying with conditions of paragraph 20, p. 60. Consult Chairman of Department.

200. Individual Research. Yr; credit commensurate with work accomplished. Well-qualified graduate students may undertake individual research in some definite field. Staff.

202. Methods in Spanish Literary Criticism. Yr; 2 cr. Required of candidates for the doctorate who have not had this training elsewhere. A study of genre types, and of the social, philosophical and aesthetic questions relating to the interpretation of Spanish literature. Offered 1940-41 and in alternate years. Sr. Ortega.

Spanish and Portuguese Masterpieces in Translation. Mr. Berkowitz. See Comparative Literature 55. Does not carry credit in Spanish.

Cervantes and the Spanish Golden Age. Sr. Ortega. See Comparative Literature 143. Does not carry credit in Spanish.

SEMINARIES

At least one seminary is offered each year in the Modern Period or the Golden Age. The seminary in Medieval Literature is offered alternating with Spanish 210, Philological Seminary in Old Spanish.

204. Cervantes. Yr; 2 cr. Sr. Ortega.

205. Eighteenth Century. Yr; 2 cr. Mr. Lyon.

209. History of Literary Criticism in Spain (The generation of 1868). Yr; 2 cr. Mr. Berkowitz.

226. Spanish-American Literature. Yr; 2 cr. Offered 1940-41. Sr. Neale-Silva.

230. Tirso de Molina. Yr; 2 cr. Sr. Ortega.

231. Galdos. Yr; 2 cr. Mr. Berkowitz.

240. Quevedo. Yr; 2 cr. Mr. Cool.

256. Pre-Romanticism. Yr; 2 cr. Offered 1940-41. Mr. Adams.

262. Spanish Romanticism. Yr; 2 cr. Mr. Berkowitz.

263. Modern Spanish Thought. Yr; 2 cr. Sr. Ortega.

264. Spanish Didactic Literature. Yr; 2 cr. Mr. Kasten.

282. Medieval Literature. Yr; 2 cr. Offered 1941-42 and in alternate years. Mr. Kasten.

PORTUGUESE

1a-1b. ELEMENTARY PORTUGUESE. Yr; 4 cr. For beginners. Mr. Kasten.

10a. THIRD-SEMESTER PORTUGUESE. I; 3 cr. Prerequisite: Portuguese 1b. Mr. Kasten.

10b. FOURTH-SEMESTER PORTUGUESE. II; 3 cr. Prerequisite: Portuguese 10a. Mr. Kasten.

15. ELEMENTARY CONVERSATION. Yr; 1 cr. Prerequisite: Portuguese 1b. May be taken only with Portuguese 10a or 10b. Mr. Kasten.

SPEECH

PROFESSORS EWBANK, WEAVER, *chairman*, WEST; ASSOCIATE PROFESSORS BORCHERS, JOHNSON; ASSISTANT PROFESSORS LANE, MITCHELL; INSTRUCTORS BUERKI, GRIM.

The courses in this department have two main functions: 1. The education of students in the fundamentals of speech (private and public) covering both scientific and artistic aspects—organized knowledge and personal proficiency; 2. The preparation of especially qualified students to become teachers in one or more of the following sections of this field: (a) argumentation and debate, and the composition and delivery of public speeches; (b) reading, acting, and dramatic production; (c) disorders of speech and corrective methods; (d) the psychology and pedagogy of reading and speaking; (e) voice science and phonetics. The courses are so arranged as to make possible systematic and progressive study during the sophomore, junior, and senior years. Courses in speech are not open to freshmen.

MAJOR. A minimum of thirty credits including courses 1, 2, 3 or 4, 6, 16 or 25, and 141. Courses 1, 6, and 16 should be taken concurrently if possible. Twelve credits must be in courses numbered above 100. Upper-group students who have done distinguished work in speech will be permitted to write theses.

THE WISCONSIN UNION THEATRE. This well-equipped theatre provides unusual facilities for training students in acting and in producing plays. A number of plays are staged each semester.

SPEECH CLINIC. The clinic, which is free to all students, is open for fifteen to eighteen hours per week throughout the academic year; it offers expert guidance and assistance in the diagnosis and treatment of all kinds of voice and speech disorders. Mr. West and staff.

FORENSIC ACTIVITIES. The department sponsors and supervises an extensive program of intra-mural and intercollegiate debates and other speech contests which provide special training for students with unusual talent.

PUBLIC READING. Students especially proficient in reading are given the opportunity to appear on a regular program of public readings.

1. FUNDAMENTALS OF SPEECH. I, II; 3, 2, or 1 credits. For one credit, lecture course designed to give the student an understanding of the speech function and the principles of effective speech.

For two credits, recitation devoted to practice, analysis of individual performance in speech, and suggestions for improvement.

For three credits, recitation and lecture as described above.

Students who expect to take further work in the department should elect Speech 1 in their sophomore year if possible. Not more than three credits may be earned in any combination of Speech 1 and Speech 7 and such combination must include the lecture hour of Speech 1. Open to all students except freshmen. Lab. fee $1.00. Lecture and eight recitation sections. Mr. Ewbank and staff.

2. FUNDAMENTALS OF SPEECH. I, II; 3 cr. Continuation of Speech 1, which is prerequisite. Miss Borchers, Mr. Weaver.

3. Argumentation and Debate. I; 3 cr. A study of the theory of argument with the practice in preparation and delivery of various types of argumentative speeches. Prerequisite: 2 credits in an elementary course. Mr. Ewbank and staff.

4. Elements of Persuasion. II; 3 cr. An elementary consideration of the psychology of persuasion with practice in the preparation and delivery of various types of persuasive speeches. Prerequisite: 2 credits in an elementary course. Lecture and three recitation sections. Miss Grim.

5. Voice Training. I; 2 cr. For physical education women. Lab. fee $1.00. Two practice sections. Miss Grim.

6. Voice Training. I; 2 cr. Specific training and practice designed to improve vocal conditions for all speech purposes. Exercises for flexibility, range, relief from tension, articulation and enunciation. Prerequisite: For majors, Speech 1* which may be taken concurrently; for others, consent of instructor. Not open to senior majors. Lab. fee $1.00 Miss Grim.

7. Public Speaking. I, II; 2 cr. For those who wish to develop fundamental skill in direct public address. Special emphasis upon purpose, audience, occasion, and types of speeches. Students taking or having taken Speech 7 may elect the lecture in Speech 1. Not more than three credits may be earned in any combination of Speech 1 and Speech 7 and such combination must include the lecture hour of Speech 1. Mr. Ewbank and staff.

8a. Extempore Speaking. I, II; 2 cr. Open only to freshman physical education men and freshman electrical engineers, of whom it is required. Mr. Robinson.

8b. Extempore Speaking. II; 2 cr. Prerequisite: Speech 8a. Required of freshman physical education men and freshman electrical engineers. Mr. Robinson.

16. Elements of Expressive Action. I, II; 2 cr. Prerequisites: For majors, Speech 1* and 6 or concurrent registration; for others, sophomore standing and consent of instructor. Miss Grim, Miss Johnson.

18. Oral Interpretation of Literature. II; 2 cr. Prerequisites: For majors, Speech 6; for others, junior standing and consent of instructor. Miss Johnson.

19a. Elementary Dramatic Production. I; 2 cr. History of the theatre. Prerequisites: For majors, Speech 16 or concurrent registration; for others, junior standing and consent of instructor. Lab. fee $1.50. Mr. Mitchell.

19b. Elementary Dramatic Production. II; 2 cr. Fundamentals of acting. Prerequisites: For majors, Speech 16 or concurrent registration; for others, junior standing and consent of instructor. Lab. fee $1.50. Mr. Mitchell.

22. Dramatic Reading and Platform Art. Yr; 2 cr. Prerequisites: Speech 16 and 18; the former may be taken concurrently. Miss Johnson.

24. The Rehabilitation of Speech. I; 2 cr. Open only to majors in physical therapy. Mr. West.

25. Correction of Speech Disorders. I; 3 cr. Prerequisites: Speech 1 and junior standing. Mr. West.

100. Senior Thesis. Yr; 2 cr. Staff.

105. Speech Composition. I; 3 cr. Prerequisite: For majors, Speech 2, 3, or 4; for others, consent of instructor. Mr. Ewbank.

110. Radio Speaking. II; 2 cr. Prerequisites: For majors, Speech 6 and junior standing; for others, junior standing and consent of instructor. Lab. fee $2.00. Mr. Ewbank and staff.

119. Theatre Direction. Yr; 2 cr. Prerequisites: For majors, Speech 19a and 19b; for others, senior standing and consent of instructor. Lab. fee $1.50. Mr. Lane and Mr. Mitchell.

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*Wherever listed as a prerequisite, Speech 1 signifies 1 credit in the lecture hour of Speech 1, plus two practice hours in either Speech 1 or 7.

120. Play Writing. I; 3 cr. Prerequisites: Junior standing and consent of instructor. Lab. fee $1.50. Mr. Mitchell.

121. Voice Science. I; 3 cr. Prerequisites: For majors, Speech 2 and junior standing; for others consent of instructor. Mr. Weaver.

123. Interpretation of Classic Literature. I; 2 cr. Prerequisites: For majors, Speech 22 and consent of instructor; for others, senior standing and consent of instructor. Miss Johnson.

125. Speech Pathology. I; 3 cr. Prerequisites: For majors, Speech 2 and 25; for others, Speech 25 or consent of instructor. Mr. West.

126. Advanced Correction of Speech Disorders. II; 3 cr. Prerequisites: For majors, Speech 2 and 25; for others, Speech 25 or consent of instructor. Mr. West.

135. Advanced Argumentation and Debate. II; 3 cr. Prerequisite: Speech 3 or 4 or consent of instructor. Mr. Ewbank.

140. Stage Design (Art Education 140). Yr; 2 cr. I. Principles of design in relation to scenic designing. Individual and group presentations on model stage. II. Application of these priciples; scenic construction and lighting in Bascom Theatre. Lab. fee $1.50. Prerequisites: Speech 19a and 19b or graduate standing in speech or junior standing in Art Education. Mr. Varnum and Mr. Buerki.

141. Psychology of Speech. II; 3 cr. Prerequisites: For majors, junior standing and Speech 2; for others consent of instructor Mr. Weaver.

185. Introduction to Phonetics. (English 185.) I, II; 3 cr. Prerequisites: For majors, Speech 2 or 25 or consent of instructor; for others, consent of instructor. I, Mr. Hanley; II, Mr. West.

186. Advanced Phonetics. (See English 186).

200. Research. Yr; 1-4 cr. Mr. Weaver and staff.

205. Seminary, Rhetoric and Oratory. I; 2 cr. Miss Borchers.

219. Seminary, Dramatic Production. I; 2 cr. Mr. Mitchell.

220. Seminary, Theory of Oral Interpretation. II; 2 cr. Miss Johnson.

227. Seminary, Speech Pathology. Yr; 2 cr. Mr. West.

255. Seminary, Persuasion. II; 2 cr. Mr. Ewbank.

TEACHERS' COURSES

Teaching of Speech in High School. See School of Education.

Teaching of Speech in College. See School of Education.

ZOOLOGY

Professors Guyer, *chairman*, Juday, Meyer, Noland, Wagner; Associate Professor Herrick; Assistant Professor Spielman; Research Associates Claus, McShan, Manning; Instructors Bilstad, Hasler, Wolfe.

Major. A minimum of 30 credits, including the following courses: Zoology 1, 104, 105, 106 or 107, 111 or 113, and one course from each of the two following groups: (A) Zoology 102, 119 or 120; (B) 118, 122 or 126. Students planning to enter zoological teaching or research are advised to take Botany 1, Zoology 102 and Zoology 118 or 126. Students planning to enter medicine, nursing or hospital technician work after graduation may profitably take Zoology 119 and 122. Botany 1 may be credited toward the major in zoology; however, of the 30 credits required in the major not more than 10 may be taken in elementary courses, such as Botany 1, Zoology 1, 2 and 17. Students majoring in this department and having a grade-point average of 2.0 or above in zoology at the end of their junior year are invited to confer with their advisers regarding the possibility of undertaking research work toward a thesis (Zoology 100) during their senior

year. For the advanced courses training in chemistry and also the ability to read French and German are desirable. Medical students will find courses 104-106, 111-113, 119, 120 and 122 of special interest. Agricultural students will find courses 104, 106, 110-112, 118-120 of special interest.

1. ANIMAL BIOLOGY. I, II; 5 cr. Adaptations of animals, anatomy and physiology of organ systems, embryology, heredity, and evolution. This course together with Botany 1 or Zoology 2 satisfies the science requirement for the B.A. degree. Lab. fee $8.00. 4 hrs. lab; 2 hrs. lect; 1 hr. quiz. Mr. Guyer, Mr. Wagner and staff.

2. GENERAL ZOOLOGY. II; 5 cr. A survey of the main types of animals, their classification, structure, life history, and interest for man. Bird trips. Prerequisite: Zoology 1. Lab. fee $8.00. Mr. Hasler and staff.

17. SURVEY OF ZOOLOGY: HOW ANIMALS LIVE. I; 3 cr. A brief course in zoological principles. May not be taken by students who have had Zoology 1. Lab. fee $5.00. Two lectures, one three-hour laboratory and quiz period. Mr. Wagner and staff.

100. SENIOR THESIS. Yr; 2 cr. Original, individual work for zoology majors of upper-group status. Requires permission of adviser in zoology. Staff.

102. INVERTEBRATE ZOOLOGY. I; 5 cr. Structure, life history, classification, and adaptations of invertebrate animals. Prerequisite: Zoology 1. Lab. fee $10.00. Mr. Noland and staff.

103. THE VERTEBRATES. II; 2 cr. Lectures on classification, life history, and adaptations of vertebrate animals. Prerequisite: Zoology 1. Mr. Wagner.

104. COMPARATIVE ANATOMY OF VERTEBRATES. II; 5 cr. Lectures comparing structure and development of organ systems in the different vertebrate groups. Laboratory dissection of shark, mud-puppy, and cat. Prerequisite: Zoology 1 or 17. Lab. fee $10.00. Mr. Wagner and staff.

105. VERTEBRATE EMBRYOLOGY. I; 5 cr. The early embryology of vertebrates, including fertilization, cleavage, and development of organ systems. Prerequisite: Zoology 1 or 17. Lab. fee $7.00. Mr. Meyer and staff.

106. HEREDITY AND EUGENICS. I; 2 cr. The laws of heredity, their application to man, and the importance of the biological principles underlying race-betterment. Prerequisite: An elementary course in zoology or botany. Mr. Guyer.

107. ORGANIC EVOLUTION. II; 2 cr. A discussion of organic evolution and how it has taken place. Not open to freshmen. Mr. Wagner.

108. PROTOZOOLOGY. II; 3 cr. Structure, physiology, life history, and adaptations of protozoa, especially the non-parasitic forms. Prerequisite: Zoology 102 or consent or instructor. Lab. fee $5.00. Mr. Noland.

109. ADVANCED VERTEBRATE EMBRYOLOGY. II; 3 cr. The development of organs, considered from the functional and comparative standpoints. Each student undertakes a special problem in organogenesis. Prerequisites: Zoology 104, 105, 111 and consent of instructor. Lab. fee $8.00. Mr. Meyer.

110. ENTOMOLOGY: ANATOMY AND EMBRYOLOGY. I; 3 cr. Anatomy, histology and development of insects. Prerequisite: An elementary course in entomology. Lab. fee $4.00. Mr. Noland.

111. MICRO-TECHNIQUE. I; 3 cr. Training in the preparation of histological material. Prerequisite: Zoology 1. Lab. fee $12.00. Miss Bilstad.

112. INSECTS AND MAN. I; 2 cr. Lectures on insects in their relation to man with special reference to insects of medical importance. Mr. Herrick.

113. COMPARATIVE ANIMAL HISTOLOGY. II; 4 cr. A comparative study of the tissues of vertebrates and invertebrate animals. Prerequisite: Zoology 104 or 105. Lab. fee $6.00. Miss Bilstad.

118. GENERAL ENTOMOLOGY. II; 3 cr. Discussions on the life problems and adaptations of insects. Collecting and classifying of insects. Lab. fee $5.00. Mr. Noland.

119. Animal Parasites of Man. II; 3 cr. Morphology, life history, diagnosis and control of the important parasites affecting man. For medical students and others interested in public health problems. Prerequisite: Zoology 1 or 17. Lab. fee $8.00. Mr. Herrick and staff.

120. Parasites of Domestic Animals. I; 3 cr. Structure, life history, diagnosis and prevention of parasites of the domesticated vertebrate animals. Prerequisite: Zoology 1, 17 or Vet. Sci. 1. Lab. fee $5.00. Mr. Herrick.

122. Endocrinology. I; 3 cr. The physiology of the glands of internal secretion, with emphasis on those concerned with reproduction. Prerequisites: Zoology 105, Chemistry 1a. Mr. Meyer.

123. Advanced Entomology. I, II; *cr. For students who desire to pursue advanced entomological work. Prerequisite: Zoology 118. Lab. fee $2.50. Mr. Noland.

124. Limnology. I; 2 cr. The geology, physics, chemistry, and biology of lakes. Prerequisite: Zoology 1, Chemistry 1a. Mr. Juday.

125. Plankton Organisms. II; 2 cr. Identification, distribution, variation, and economic importance of plankton forms. Prerequisites: Botany 1, Zoology 1. Lab. fee $2.00. Mr. Juday.

126. Field Zoology. I; 4 cr. Field trips; observing habitats and collecting of local animals; identification and study of collected species in the laboratory. Prerequisite: Zoology 102 or consent of instructor. Lab. fee $5.00. Mr. Hasler.

127. Comparative Physiology. I; 4 cr. A survey of the physiology of animals other than mammals. Prerequisites: General Physics, Chemistry 120, Zoology 102 and 104, or consent of instructor. Lab. fee $10.00. Lectures by Cameron, Eyster, Guyer, Hasler, Herrick, Herrin, Meek, Meyer, Noland. Mr. Hasler in charge of course. A joint course in the departments of Zoology and Physiology.

180. Advanced Zoological Problems. I, II; 2-5 cr. Advanced zoological work not covered in regular courses. Prerequisites: Chairman's and dean's approval. Lab. fee $5.00. Staff.

200. Graduate Research. I, II; 2-5 cr. Lab. fee $5.00. Staff.

201. Proseminary. Yr; 2 cr. A discussion of the history of zoology. Distribution of graduate students between seminary and proseminary will be arranged in consultation with the instructors in charge. Specially qualified seniors may be admitted to the proseminary. Mr. Wagner.

214. Anatomy and Physiology of the Cell. I; 2 cr. The physics and chemistry of the cell, theory of staining, colloidal nature of protoplasm, phenomena of metabolism, stimulation and transformation of energy. Prerequisites: Chemistry 1; Zoology 105 or 111. Mr. Guyer.

215. The Cell in Development and Inheritance. II; 2 cr. The chromosoma mechanism of the cell, and its relation to recent discoveries in experimental embryology and genetics. Prerequisite: Zoology 105. Mr. Guyer.

216. Cytology. Yr; 3 cr. An introduction to cytological technique and the general field of cellular biology. Prerequisite: Zoology 111. Hours by arrangement. Lab. fee $5.00. Mr. Guyer.

220. Seminary. Yr; 2 cr. Oral reports and discussions of advanced zoological subjects by members of the group. Mr. Guyer.

COLLEGE OF AGRICULTURE

CHRIS L. CHRISTENSEN, DEAN

FACULTY

AHLGREN, HENRY LAWRENCE, *Ph.D.*, Assistant Professor of Agronomy

ALBERT, ARTHUR ROBERT, *B.S.*, Associate Professor of Agronomy and Soils; Supt. Marshfield, Hancock and Coddington Experiment Stations

ALLEN, THOMAS CORT, *Ph.D.*, Assistant Professor of Economic Entomology

ANDERSEN, MARTIN PERRY, *M.A.*, Instructor in Rural Sociology and Speech

ANDERSON, DON SHERMAN, *B.S.*, Associate Professor of Agricultural Economics

ANNIN, GERALD EVERETT, *M.S.*, Assistant Professor of Poultry Husbandry

AUST, FRANZ AUGUST, *M.S.*, *M.L.D.*, Associate Professor of Horticulture

BAKKEN, HENRY HARRISON, *M.A.*, Associate Professor of Agricultural Economics

BALDWIN, IRA LAWRENCE, *Ph.D.*, Assistant Dean, College of Agriculture; Professor of Agricultural Bacteriology

BARTON, JOHN RECTOR, *B.A.*, *B.D.*, Associate Professor of Rural Sociology

BAUMANN, CARL AUGUST, *Ph..D.*, Assistant Professor of Biochemistry

BEACH, BURR ABRAHAM, *D.V.M.*, Professor of Veterinary Science

BEWICK, THOMAS LYMAN, *Ph.B.*, *Ph.M.*, State Leader of Boys and Girls Clubs

BLISS, MILTON EDWARD, *B.S.*, Instructor in Agricultural Journalism

BOHSTEDT, GUSTAV, *Ph.D.*, Professor of Animal and Dairy Husbandry

BRANN, JOHN WILLIAM, *M.S.*, Assistant Professor of Plant Pathology

BRIGGS, GEORGE MCSPADDEN, *B.S.*, Professor of Agronomy; Associate Director, Short Course in Agriculture

BRINK, ROYAL ALEXANDER, *M.S.*, *Sc.D.*, Professor of Genetics

BRUHN, HJALMAR DIEHL, *M.S.*, Instructor in Agricultural Engineering

BUCK, CHARLES ALFRED, *B.S.*, Instructor in Dairy Industry

BURCALOW, FRANK VICTOR, *M.S.*, Instructor in Agronomy

CALLENBACH, JOHN ANTON, *Ph.D.*, Instructor in Economic Entomology

CARTER, ROY MERWIN, *M.S.*, Instructor in Agricultural Engineering

CASIDA, LESTER EARL, *Ph.D.*, Associate Professor of Genetics

CHAPMAN, ARTHUR BARCLAY, *Ph.D.*, Assistant Professor of Genetics

CHAPMAN, CLINTON JOSEPH, *B.S.*, Professor of Soils

CHRISTENSEN, CHRISTIAN LAURITHS, *B.S.*, *D.Agr.*, Dean; Director of Agricultural Experiment Station and Agricultural Extension; Professor of Agricultural Economics

CLARK, WARREN WILLIAM, *M.S.*, Professor of Agricultural Extension; Associate Director of Agricultural Extension

CLARK, (WILLIAM) NOBLE, *M.S.*, Associate Director of the Agricultural Experiment Station

COLE, LEON JACOB, *Ph.D.*, Professor of Genetics

COLLENTINE, ARTHUR OWEN, *B.S.*, Assistant Professor of Dairy Husbandry

COMBS, OVA BEETEM, *M.S.*, Instructor in Horticulture

COOPER, DELMER CLAIR, *Ph.D.*, Assistant Professor of Genetics

CRAMER, ALBERT JULIUS, *B.S.*, Assistant Professor of Dairy Husbandry

CUMLEY, RUSSEL WALTERS, *Ph.D.*, Research Associate in Genetics

CURRY, JOHN STEUART, *A.N.A.*, Artist in Residence, College of Agriculture

DARLOW, ALBERT EDWARD, *M.S.*, Associate Professor of Animal Husbandry

DELWICHE, EDMOND JOSEPH, *M.S.*, Professor of Agronomy; In Charge of Ashland, Spooner, and Peninsular Experiment Stations

DICKERSON, GORDON EDWIN, *Ph.D.*, Instructor in Genetics and Dairy Husbandry

DICKSON, JAMES GEERE, *Ph.D.*, Professor of Plant Pathology
DUFFEE, FLOYD WALDO, *B.S.*, Professor of Agricultural Engineering
DUGGAR, BENJAMIN MINGE, *Ph.D.*, Professor of Physiological and Applied Botany
EBLING, WALTER HENRY, *Ph.D.*, Assistant Professor of Agricultural Economics
ELVEHJEM, CONRAD ARNOLD, *Ph.D.*, Professor of Biochemistry
ERDMANN, HERBERT HENSLEY, *M.S.*, Assistant Professor of Agricultural Economics
FARGO, JOHN MERRILL, *Ph.D.*, Assistant Professor of Animal Husbandry
FARRAR, CLAYTON LEON, *Ph.D.*, Associate Professor of Economic Entomology
FERGUSON, LLOYD C., *M.S.*, *D.V.M.*, Instructor in Genetics and Veterinary Science
FLUKE, CHARLES LEWIS, JR., *Ph.D.*, Professor of Economic Entomology
FOLLETT, ALBERT OSCAR, *B.S.*, Assistant Professor of Agricultural Economics
FRAZIER, WILLIAM CARROLL, *Ph.D.*, Professor of Agricultural Bacteriology
FRED, EDWIN BROUN, *Ph.D.*, Dean of the Graduate School; Professor of Agricultural Bacteriology
FREITAG, WILLIS DIETRICH, *B.S.*, Instructor in Agricultural Education
FROKER, RUDOLPH KNUGAARD, *M.S.*, Associate Professor of Agricultural Economics
FROST, WILLIAM DODGE, *Ph.D.*, *Dr.P.H.*, Emeritus Professor of Agricultural Bacteriology
FULLER, JAMES GARFIELD, *M.S.*, Professor of Animal Husbandry
GILBERT, EDWARD MARTINIUS, *Ph.D.*, Professor of Botany and Plant Pathology
GRABER, LAURENCE FREDERICK, *Ph.D.*, Professor of Agronomy
GRAUL, EDWARD JOHN, *M.S.*, Professor of Soils
HAAS, ALFRED JOHN, Executive Secretary, College of Agriculture
HADLEY, FREDERICK BROWN, *D.V.M.*, Professor of Veterinary Science
HALL, ISAAC FULTS, *Ph.D.*, Associate Professor of Agricultural Economics
HALPIN, JAMES GARFIELD, *B.S.*, Professor of Poultry Husbandry
HARRIS, ROY THEODORE, Instructor in Dairy Husbandry
HART, EDWIN BRET, *B.S.*, Professor of Biochemistry
HASTINGS, EDWIN GEORGE, *M.S.*, Professor of Agricultural Bacteriology
HAYES, JOHN BARRY, *B.S.*, Professor of Poultry Husbandry
HEAN, CLARENCE SCOTT, *B.A.*, Librarian
HEDGES, IRWIN RANDOLPH, *M.S.*, Instructor in Agricultural Economics
HEIZER, EDWIN ELBERT, *Ph.D.*, Associate Professor of Dairy Husbandry
HERRICK, CHESTER ALBERN, *Sc.D.*, Associate Professor of Zoology and Veterinary Science
HIBBARD, BENJAMIN HORACE, *Ph.D.*, Professor of Agricultural Economics
HILL, GEORGE WILLIAM, *B.A.*, Assistant Professor of Rural Sociology
HOBSON, ASHER, *Ph.D.*, Professor of Agricultural Economics
HOLDEN, EUGENE DAVENPORT, *M.S.*, Assistant Professor of Agronomy
HOLMES, CLAYTON ERNEST, *Ph.D.*, Assistant Professor of Poultry Husbandry
HOLMES, LAURENCE GERMAIN, *B.S.*, Instructor in Horticulture
HOPKINS, ANDREW WINKLE, *B.L.*, Professor of Agricultural Journalism; Agricultural Editor
HULL, HAROLD HAIGHT, *Ph.D.*, Instructor in Soils
HUMPHREY, GEORGE COLVIN, *B.S.*, Professor of Dairy Husbandry
IRWIN, MALCOLM ROBERT, *Ph.D.*, Professor of Genetics
JACKSON, HOWARD CAMPBELL, *Ph.D.*, Professor of Dairy Industry
JAMES, JOHN AMBROSE, *B.S.*, Professor of Agricultural Education
JOHNSON, JAMES, *Ph.D.*, Professor of Horticulture
JOHNSON, MARVIN JOYCE, *Ph.D.*, Instructor and Research Associate in Agricultural Bacteriology and Biochemistry
JONES, LEWIS RALPH, *Ph.D.*, *Sc.D.*, *LL.D.*, Emeritus Professor of Plant Pathology
KEITT, GEORGE WANNAMAKER, *Ph.D.*, *Sc.D.*, Professor of Plant Pathology
KELLOGG, MRS. MARIE JOHNSON, *M.A.*, Instructor in Rural Sociology and Speech
KIVLIN, VINCENT EARL, *M.S.*, Professor of Agricultural Education; Director of the Agricultural Short Course

KOLB, JOHN HARRISON, *Ph.D.*, Professor of Rural Sociology
KUEHNER, CONRAD LOUIS, *B.S.*, Assistant Professor of Horticulture
LACEY, JAMES JEROME, *B.S.*, Associate Professor of Animal Husbandry
LANGDON, GRACE ELIZABETH, *M.A.*, Assistant Professor of Agricultural Journalism
LA ROCK, MAX JAMES, *B.A.*, Assistant Professor of Agricultural Engineering
LARSON, RUSSELL HAROLD, *Ph.D.*, Instructor in Plant Pathology
LEITH, BENJAMIN DONALD, *B.S.*, Professor of Agronomy
LEOPOLD, ALDO, *B.S.*, *M.F.*, Professor of Wildlife Management
LILLY, JOHN HENRY, *Ph.D.*, Instructor in Economic Entomology
LINK, KARL PAUL, *Ph.D.*, Professor of Biochemistry
LONGENECKER, GEORGE WILLIAM, *M.S.*, Associate Professor of Horticulture, Executive Director, University Arboretum
LUTHER, ERNEST LEONARD, *B.A.*, *B.S.*, Emeritus Professor of Agricultural Extension
MCCARTER, JANET RUTH, *Ph.D.*, Research Associate and Instructor in Agricultural Bacteriology
MCCOY, ELIZABETH FLORENCE, *Ph.D.*, Associate Professor of Agricultural Bacteriology
MCNALL, PRESTON ESSEX, *Ph.D.*, Professor of Agricultural Economics
MILWARD, JAMES GARFIELD, *M.S.*, Professor of Horticulture
MITCHELL, DONALD RICHARDS, *M.S.*, Assistant Professor of Agricultural Economics
MOORE, JAMES GARFIELD, *M.S.*, Professor of Horticulture
MOORE, RANSOM ASA, *M.A.*, Emeritus Professor of Agronomy
MORRISSEY, HAROLD JAMES, *B.S.*, Instructor in Agricultural Education
MORTENSON, WILLIAM PETER, *Ph.D.*, Associate Professor of Agricultural Economics
MUCKENHIRN, ROBERT JOHN, *Ph.D.*, Instructor in Soils
NEAL, NORMAN PERCY, *Ph.D.*, Assistant Professor of Agronomy and Genetics
OGDEN, WILLIAM BUTLER, *M.S.*, Instructor in Horticulture
PARSONS, KENNETH HERALD, *B.A.*, Assistant Professor of Agricultural Economics
PETERSON, WILLIAM HAROLD, *Ph.D.*, Professor of Biochemistry
PHILLIPS, PAUL HORRELL, *Ph.D.*, Associate Professor of Biochemistry
PLATZ, MRS. BLANCHE RIISING, *M.S.*, Instructor in Biochemistry
POUNDEN, WILLIAM DAWSON, *D.V.M.*, Instructor in Veterinary Science
PRICE, WALTER VAN, *Ph.D.*, Professor of Dairy Industry
RASMUSSEN, RUPERT HENRY, *B.S.*, Instructor in Agricultural Journalism
RIEMAN, GUSTAV HERMAN, *Ph.D.*, Associate Professor of Genetics, Horticulture, and Plant Pathology
RIKER, ALBERT JOYCE, *Ph.D.*, Professor of Plant Pathology
RILEY, MILES CHARLES, *LL.B.*, Lecturer in Agricultural Economics
ROBERTS, RAY HARLAND, *Ph.D.*, Professor of Horticulture
ROCHE, BENJAMIN HAMILTON, *M.S.*, Assistant Professor of Animal Husbandry
ROWLANDS, WALTER AUGUSTUS, *B.S.*, Professor of Agricultural Economics; District Extension Agent, Agricultural Extension
RUPEL, ISAAC WALKER, *Ph.D.*, Assistant Professor of Dairy Husbandry
SALTER, LEONARD AUSTIN, JR., *M.S.*, Assistant Professor of Agricultural Economics
SARLES, WILLIAM BOWEN, *Ph.D.*, Associate Professor of Agricultural Bacteriology
SCHAARS, MARVIN ARNOLD, *Ph.D.*, Associate Professor of Agricultural Economics
SCHAEFER, CARL WILLIAM, *Ph.D.*, Instructor in Economic Entomology
SEARLS, EDWARD MARLBOROUGH, *Ph.D.*, Assistant Professor of Economic Entomology
SHANDS, HAZEL LEE, *Ph.D.*, Assistant Professor of Agronomy
SMITH, WILLIAM KENNETH, *Ph.D.*, Assistant Professor of Genetics and Agronomy
SOMMER, HUGO HENRY, *Ph.D.*, Professor of Dairy Industry
STEENBOCK, HARRY, *Ph.D.*, *Sc.D.*, Professor of Biochemistry
STROMMEN, ARTHUR MALCOLM, *M.S.*, Instructor in Agronomy
STRONG, FRANK MORGAN, *Ph.D.*, Assistant Professor of Biochemistry
SUMNER, WILLIAM ALLISON, *Ph.M.*, Professor of Agricultural Journalism
THOMSEN, LOUIS CHARLES, *B.S.*, Associate Professor of Dairy Industry

TOTTINGHAM, WILLIAM EDWARD, *Ph.D.*, Associate Professor of Biochemistry
TRENK, FRED BENJAMIN, *M.S.*, Associate Professor of Agricultural Engineering
TRUOG, EMIL, *M.S.*, Professor of Soils
TURNER, FORREST HAVEN, *M.A.*, Instructor in Agronomy
UMBREIT, WAYNE WILLIAM, *Ph.D.*, Instructor in Agricultural Bacteriology
VAUGHAN, RICHARD ENGLISH, *M.S.*, Professor of Plant Pathology
VERGERONT, GLEN WALLACE, *B.A.*, Assistant Professor of Dairy Husbandry
WALKER, JOHN CHARLES, *Ph.D.*, Professor of Plant Pathology
WALLENFELDT, EVERT, *M.S.*, Assistant Professor of Dairy Industry
WECKEL, KENNETH GRANVILLE, *Ph.D.*, Assistant Professor of Dairy Industry
WEHRWEIN, GEORGE SIMON, *Ph.D.*, Professor of Agricultural Economics
WERNER, GEORGE MCKINLEY, *B.S.*, Instructor in Dairy Husbandry
WHIPPLE, OTIS CHESTER, *Ph.D.*, Instructor in Plant Pathology
WHITSON, ANDREW ROBINSON, *B.S.*, Professor of Soils
WILDE, SERGIUS ALEXANDER, *F.E., Sc.D.*, Associate Professor of Soils
WILEDEN, ARTHUR FREDERICK, *M.S.*, Associate Professor of Rural Sociology
WILSON, HARLEY FROST, *M.S.*, Professor of Economic Entomology
WILSON, PERRY WILLIAM, *Ph.D.*, Associate Professor of Agricultural Bacteriology
WISNICKY, WALTER, *B.S., D.V.M.*, Professor of Veterinary Science
WITZEL, STANLEY ARTHUR, *M.S.*, Associate Professor of Agricultural Engineering
WOJTA, JOSEPH FRANK, *M.S.*, Emeritus Professor of Agricultural Extension
WRIGHT, ANDREW HAMILTON, *M.S.*, Professor of Agronomy
ZEASMAN, OTTO REINHART, *B.S.*, Associate Professor of Agricultural Engineering and Soils.

FUNCTIONS OF THE COLLEGE OF AGRICULTURE

The College of Agriculture performs three distinct functions for the citizens of Wisconsin. (1) it provides, with the cooperation of the other schools and colleges of the University, suitable collegiate instruction in agriculture and its related fields; (2) it conducts, through the organization of its Experiment Station, research in the natural and social sciences as they relate to agriculture and homemaking; and (3) it disseminates to the farmers and homemakers of the State, through its Agricultural Extension organization, information on the latest research findings as pertains to their respective vocations. The content of this bulletin deals exclusively with the instructional function of the College of Agriculture .

OPPORTUNITIES IN AGRICULTURE

Young men, particularly those with a farm background or those who have lived in rural communities and understand rural problems, will find many opportunities in the broad field of agriculture. These opportunities fall into four general classifications, namely: (1) farming; (2) agricultural teaching and extension work; (3) agricultural commerce and industry; and (4) agricultural research.

FARMING—There is opportunity for success in farming. The college graduate is trained in the application of modern up-to-date methods which today are indispensible to profitable farming. He has had an opportunity to broaden greatly his perspective and to increase his capacity to deal effectively with farm problems.

TEACHING AND EXTENSION WORK—A large, closely-knit, organization of the Smith-Hughes vocational agriculture teachers, county agricultural agents and other extension workers is effectively disseminating among the farm youth and farmers of the various states, information on up-to-date agricultural methods and practices made available by the agricultural experiment stations. Only men with adequate farm background and training in an agricultural college can expect to be placed in agricultural teaching or extension work.

AGRICULTURAL COMMERCE AND INDUSTRY—The business world uses many agriculturally-trained college graduates; banks, trust and insurance companies need them in their agricultural loan and investment divisions. Canning, implement, feed and seed, dairy products, meat packing, and farm implement companies call for men graduated from agricultural colleges.

AGRICULTURAL RESEARCH—Agricultural experiment stations, various federal and privately owned agencies, find need for trained men who have specialized in some one phase of natural or social science relating to agriculture. To equip himself best for a position in the field of agricultural research, a student should continue his study beyond the usual four years of college and plan to earn a master's or doctor of philosophy degree in the field of his special interest.

FACILITIES AND STAFF

The College of Agriculture possesses splendid physical facilities for conducting its research and instructional work. Prepared to provide training in nineteen related agricultural fields, the College of Agriculture has a staff of more than 125 highly-trained men of professorial rank.

CAMPUS ACTIVITIES

Students enrolled in the College of Agriculture will find several active, worth-while student organizations on the agricultural campus. In addition to maintaining the *Wisconsin Country Magazine,* student monthly publication, from which those who are interested may receive rich, practical experiences in writing, soliciting advertising, circulation problems, newspaper financing, or editing, students also support the following organizations:

Alpha Zeta—a chapter of the national honorary agricultural fraternity; *Agricultural Engineers*—for students in agricultural engineering; *Babcock Dairy Club*—for students interested in dairy industry; *Badger Foresters*—for students in forestry; *Blue Shield*—a club for students interested in rural life and those who want to become rural workers and leaders; *Future Farmers of America*—a collegiate club consisting of former F.F.A. members and others who plan to teach vocational agriculture; *Landscape Council Ring*—an organization for students in landscape gardening; *Saddle and Sirloin Club*—for students interested in the breeding of livestock. This club sponsors the annual Wisconsin Little International Livestock Show and provides financial support for the various stock judging teams which represent the College of Agriculture in collegiate judging competition at the American Royal, International Livestock, and National Dairy Shows; *U. W. 4-H Club*—former 4-H Club members comprise the membership of this group; and *U. W. Poultry Club*—for students interested in poultry breeding.

Serving to integrate the activities of the above-mentioned agricultural organizations, in addition to those which are open only to students in Home Economics, is the *Agricultural Student Council* which has two representatives from each of the established groups. The Council sponsors all of the agricultural campus all-student functions and seeks to promote a closer relationship between the faculty and student body.

THE LONG COURSE

OBJECTIVES—The Long Course in Agriculture is the regular four-year collegiate course leading to the degree of Bachelor of Science in Agriculture. Four years of university work or its equivalent, is necessary to complete the work for a degree. Serving a two-fold purpose, namely, to give a broad, general training and a specific of shorter duration.

MISCELLANEOUS RULES AND REGULATIONS

For Freshmen

Freshman Convocations— All freshmen in the College of Agriculture, except those who enter with one semester from some other college, or who have entered this college the second semester and completed that semester of work, are required to attend a series of eight weekly one-hour convocations during the fall semester. Three or more unexcused absences will result in a failure. Students who have failed or who have deferred convocation by consent of the Executive Committee must earn an extra credit for graduation.

Substitutions—Students intending to major in certain departments may substitute certain courses for Mathematics 71, Animal Husbandry 1, and Botany 1 during their freshman year. See curriculum for freshmen on page 195.

For Sophomores

Sophomore Agricultural Options—Sophomores in the Long Course are required to take one course of three credits or more in each of two of the following departments: Agricultural Engineering, Dairy Industry, Economic Entomology, Horticulture, Poultry Science, and Veterinary Science. A subject chosen as an option may not be included among the credits counted toward satisfying the major requirements of any of the six departments enumerated above.

Substitutions–Landscape Gardening majors may take Agricultural Economics 117 in place of Agricultural Economics 1. See curriculum for sophomores on page 196.

Majors— Majors or split majors should be chosen not later than the close of the sophomore year in order that the student may secure a well-balanced training. For majors and split majors see pages 194 and 218-227.

Sophomore Honors and Sophomore High Honors are awarded on the basis of a minimum of two full years of work, not less than 60 credits, completed in residence in the College of Agriculture for the first half of the four-year course. A student who earns, during these two years, 135 grade points plus one and one-half grade points for each credit above 60, will be awarded Sophomore Honors. A student earning 165 grade points, plus two grade points for each credit above 60, during these two years, will be awarded Sophomore High Honors.

For Juniors

Major Requirements— Juniors should plan their study schedules so as to begin to meet the requirements for their majors or split majors. See pages 194 and 218-227.

Advanced Independent Work— A student who has taken his freshman and sophomore work in the College of Agriculture, whose grade-point average for these first two years of study is 2.6 or higher may be eligible to take Advanced Independent Work during the remainder of his course which will enable him to secure a master's degree at the end of nine semesters. For details see page 227.

For Seniors

Senior Summary—Students beginning their first semester of work in the senior year are given their senior summaries at the assistant dean's office before they make out their study schedules so that they may check their past work and be certain that all the requirements for graduation will be satisfied after completing the senior year's work.

Senior Honors and Senior High Honors are awarded on the basis of a minimum of two full years of work, not less than 60 credits, completed in residence in the College of Agriculture, for the second half of the four-year course .The student who earns, during this two-year period, 135 grade points plus one and one-half grade points for each credit above 60, will be awarded Senior Honors. The student earning 165 grade points, plus two grade points for each credit above 60 during these two years, will be awarded Senior High Honors.

Senior-Graduate—Seniors in the College of Agriculture who are within six credits of having completed all the requirements for graduation and who have the minimum required grade-point average of 1.5 may be admitted to the Graduate School.

For All Students

Minimum and Maximum Study Loads— Except during the first semester of the freshman year when a minimum of 15 credits is permitted, students in agriculture must take a study program of at least 16 credits and not more than 18 credits each semester. This will include convocation and a choice of physical education, band, or military science which must be taken during the freshman year. The one credit allowed for military science each semester will be included in determining the number of credits being taken. *No exemptions from these rules will be allowed except by special permission from the Executive Committee of Class Advisers.* Hence, students who because of health or other reasons find it necessary to carry reduced schedules, must apply for permission to do so at the assistant dean's office.

MISCELLANEOUS RULES AND REGULATIONS

Course Restrictions. (1) Freshmen and sophomores are not permitted to enroll in courses numbered 100 or above; undergraduates may not take courses numbered 200 or above. (2) Undergraduates below the rank of senior, excepting juniors who are eligible for advanced work, are not permitted to carry topical work. (3) Undergraduates may not receive credit for more than two semesters of seminar in a single department.

Promotions— A student in agriculture becomes a sophomore upon the completion of 26 credits and 26 grade-points; a junior upon the completion of 60 credits and 60 grade-points; and a senior upon the completion of 95 credits and 95 grade-points.

Advisers—After completing the freshman year, a student in agriculture may select any member of the agricultural teaching staff to be his adviser. The student reserves the right to change his adviser at any time after the completion of the semester and before beginning the next one. However, in his senior year the student's adviser must be a member of the department in which the student is majoring.

Quality of Work— To remain in good scholastic standing, a student is expected to maintain a minimum average of C (1.0) in all of the subjects which he is taking.

Failures— Unless he is excused from doing so by the Executive Committee, any student who receives a grade of "fail," indicated by "F," must remove the failure by repeating the subject and securing a passing grade as soon as the subject is again offered during the period such student is in residence at the University. A course that has been failed shall take precedence over other courses in being fitted into the student's study schedule when it is next offered. A failure cannot be removed by correspondence study or by repeating the subject at another collegiate institution.

Conditions—A student who receives a grade of "condition," indicated by "E," may convert it to a passing grade by passing a special examination during the next semester he is in residence at the University. Otherwise the grade will lapse into a failure which must be removed as specified above.

Incompletes—A student who receives an "incomplete," shown as "Inc.," must complete the subject not later than the close of the semester in which it is again offered during the student's residence at the University. If not so completed, the grade for the subject will lapse into a failure unless the time for completion has been extended by the Executive Committee.

Change of Schedule— Any change in the student's schedule, however small or seemingly insignificant, may be made only by the student going to his adviser, securing his adviser's approval on the proper forms, and taking the forms to the assistant dean's office where the Executive Committee will either approve or reject the request. Any course dropped without the permission of the Executive Committee will be recorded as a failure, and must be removed in the same manner as any other failure.

Thesis— The undergraduate thesis, when required as part of the major requirement, shall consist of no more and no less than four credits.

Requirements for Graduation— The following summation of the requirements for graduation is presented to enable students to check their standing:

(1) Completion of the required courses as indicated on pages 195 to 196; (2) A total of 133 credits and 133 grade-points; (3) No unsatisfied failures, conditions or incompletes; (4) An average of one grade-point per credit during the last two semesters of work; (5) A major of 15 to 25 credits in a department or a split major of 25 or more credits of suitably related work in two or more departments. Not more than 25 elective credits in one department may count toward graduation, nor may more than 5 credits of work in some related department count as a portion of a department's major requirements. (See Departments of Instruction); (6) A minimum of 24 elective (non-required) credits outside the College of Agriculture; and (7) A minimum of 50 credits, including required, optional, major and elective courses within the College of Agriculture.

NOTE: Courses taken outside the College as a part of the major are not considered as a portion of the 50-credit requirement. Courses taught in departments outside the College of Agriculture, though listed in departments of the College of Agriculture, are not to be considered as part of the 50 required credits. Courses given by staff members of the Forest Products Laboratory, approved by the College of Agriculture, shall be considered as agricultural. Credit in Education 75 may be counted toward graduation only by those students who complete the requirements for the university teachers' certificate.

ADMISSION—The four methods by which one may be admitted to the Long Course or the Middle Course in the College of Agriculture are the same as for any other college or School in the University. See General Information bulletin, pages 21-28.

FEES, BOOKS, AND MISCELLANEOUS COSTS—During his freshman and sophomore years, the student in agriculture who is a resident of the state of Wisconsin should expect to spend from $60 to $75 each semester for his general fees, laboratory fees and books. During the junior and senior years the costs may be appreciably less depending on the number and kind of laboratory courses being taken. For further details see General Information bulletin, pages 2-5.

MAJORS AND SPLIT MAJORS—Each student enrolled in agriculture has two choices in planning his curriculum: (1) He may take his major work in one department which requires that he have a minimum of 15 and a maximum of 25 elective credits in the department, or, (2) he may choose to specialize in a field of work involving two or more departments; in this case he will take a split major which requires that he have a minimum of 25 elective credits of suitably related work in two or more departments. For either the major or the split major, a maximum of 25 credits in any one department is allowed toward graduation. This includes the four credit thesis, if a thesis is required.

MAJORS—In planning a course of study the student should make certain that he includes all the courses required for a degree, including the major requirements of a minimum of 15 *elective* credits in the department. The staff members of any department will be glad to discuss with prospective majors the opportunities which their particular field has to offer and recommend the courses that ought to be taken in preparing for a specific objective.

SPLIT MAJORS—A split major is designed for the individual who wishes to prepare himself in a field of study involving courses in two or more departments. A series of split majors approved by the Executive Committee may be found on pages 218 to 227. Other plans for split majors may be worked out, but *any new plan must be submitted to the Executive Committee for approval before the middle of the junior year.*

FLEXIBLE COURSE OF STUDY

The Long Course is designed to permit the student to have a liberal selection of subjects. The only subjects which the Long Course student *must* take to fulfill the requirements for graduation are those listed below which normally are taken in the freshman and sophomore years. Beyond those, the student may select any undergraduate subjects, to which he is eligible, in any part of the University he chooses, provided: (1) he takes a minimum of 50 *elective and required* credits within the College of Agriculture; (2) a minimum of 24 *elective* credits outside the College of Agriculture; and (3) satisfies the requirements for a major or split major.

An outline of the course of study for a four-year period is given herewith. A total of 133 credits and 133 grade-points is required for graduation. *The reader should give particular attention to notations included beneath each year's curriculum.*

THE LONG COURSE

FRESHMAN YEAR

First Semester	Credits	Second Semester	Credits
Engl. 1a—Freshman composition	3	Engl. 1b—Freshman composition[5]	3
Chem. 1a—General chemistry	5	Chem. 1b—Qualitative analysis	5
Math. 71, 1a, 3a, or 51[1]	4	Botany 1—General botany[6]	5
An. Husb. 1—Livestock prod.[2]	3	or Zoology 1—General zoology	(5)
or Agron. 1—General farm crops	(3)	Agronomy 1—General farm crops	3
Convocation[3]	0	or An. Husb. 1—Livestock prod.[2]	(3)
Physical activity requirement[4]	0	Physical activity requirement[4]	0
	15		16

[1]Students who have had only two semesters of high-school algebra will take Math. 71 or 1a; those having had three semesters of high-school algebra will not receive credit for Math. 71 or 1a, but should elect Math. 72 or 3a; those having had four semesters of high-school algebra will not receive credits for Math. 72 or 3a but should elect Math. 1b if they wish to carry college mathematics. Students having had three or more units of high-school mathematics may upon approval of the Executive Committee be allowed to substitute four credits of electives in lieu of the required mathematics. Math. 71 and 72 are for students not intending to continue mathematics beyond the required course. However, students who take either course with marked success will be permitted to take Math. 1b if they decide to continue training in mathematics. Those expecting to take advanced work in mathematics and science together with those whose major requires further training in mathematics should choose Math. 1a or 3a. Students intending to major in agricultural engineering should take Math. 51. Students intending to major in landscape gardening may substitute Topographic Engineering 107 for the mathematics requirement.

[2]Students majoring in landscape gardening may substitute Art Education 50 for Animal Husbandry 1.

[3]All freshmen in the College of Agriculture, except those who enter with one semester of work from some other college, or who have entered this College the second semester and complete that semester of work, are required to attend a series of eight weekly one-hour convocations during the fall semester. Three or more unexcused absences will result in a failure. Students who have failed or who have deferred convocation by consent of the Executive Committee must present an extra credit of work to satisfy the graduation requirement.

[4]A minimum of three hours of physical education or band instruction each week for two semesters is required of all freshmen students. Men choosing to take military science instead, must complete two full years of work to satisfy the requirement, at the end of which time one credit for each of the four semesters of work will be granted toward graduation.

[5]Students earning a grade of A in English 1a may be excused from English 1b. They may even be exempt from the full year of freshman English providing they pass the exemption tests which are given during the second week of residence.

[6]Students majoring in technical agricultural engineering may substitute Mechanics 3 for Botany 1.

SOPHOMORE YEAR

First Semester	Credits	Second Semester	Credits
Agr. Bact. 1—General survey	4	Agr. Econ. 1—Prin. of agr. econ.[3]	3
Soils 1—Soils and soil fertility[1]	4	Biochem. 1—Elem. biochemistry[1]	4
Econ. 1a—General economics	4	Agricultural option[2]	3
Agricultural option[2]	3	Electives	6-8
Electives	1-3		
	16-18		16-18

[1]Only one of the courses, Soils 1 and Biochemistry 1 is required, but both may be taken if desired.
[2]Sophomores in the Long Course are required to take one course of three credits or more in each of two of the following departments: Agricultural Engineering, Dairy Industry, Economic Entomology, Horticulture, Poultry Science, and Veterinary Science. A subject chosen as an option may not be included among the credits counted toward satisfying the major requirements of any of the six departments enumerated above.

NOTE: A student who has taken his freshman and sophomore work at the University of Wisconsin, whose grade-point average for these first two years of work is 2.6 or higher, and who is recommended by three of his sophomore instructors, may be permitted by the major division or department of his choice to pursue Advanced Independent Work during the remainder of his course, which will enable him to secure a master's degree at the end of nine semesters. See page 227 for more detailed information.

JUNIOR AND SENIOR YEARS

The student will carry from 16 to 18 credits per semester during his junior and senior years. At the beginning of his junior year the student, with the help of his adviser, should plan a program, well balanced as concerns elective and required subjects, especially in the major or split major, so that he may easily complete all of the requirements for the degree during the senior year. (See page 193).

SENIOR-GRADUATE STANDING

Any senior in the College of Agriculture who is within six credits of having completed *all* the requirements for graduation and who has the required grade-point average of 1.5 may be admitted to the Graduate School and earn residence credit to apply toward an advanced degree.

OTHER COURSES IN THE COLLEGE OF AGRICULTURE

PRE-FORESTRY

The University of Wisconsin does not offer a course in forestry. However it does offer, through its College of Agriculture, two years of work in pre-forestry study. Upon the satisfactory completion of this pre-forestry course, a student may transfer to another institution where forestry is given and there complete his work toward a degree.

The pre-forestry work suggested is similar to the prerequisite training required by most forestry schools. However, it is advisable that the student select early the institution to which he wishes to transfer so that he may modify, if necessary, a part of his work, during his sophomore year to meet the requirements of the specific institution. Practically all institutions that offer degrees in forestry require that training in the summer forestry camp be completed before the beginning of the junior year. The following curriculum for the freshman and sophomore years is recommended for students intending to take forestry:

FRESHMAN YEAR

First Semester	Credits	Second Semester	Credits
Engl. 1a—Freshman composition	3	Engl. 1b—Freshman composition	3
Chem. 1a—General chemistry	5	Chem. 1b—Qualitative analysis	5
Agronomy 1—Genl. farm crops	3	Botany 1—General botany	5
Mathematics 1a—Algebra	4	Econ. Ent. 1—Farm insects	3
or Math. 3a—Algebra and Trigonometry	(4)	Electives[1]	0-2
Convocation	0	Physical activity requirement	0
Physical activity requirement	0		
	15		16-18

SOPHOMORE YEAR

Soils 1—Soils and soil fertility	4	Biochemistry 1—Elem. biochemistry	2
Agr. Bact. 1—Genl. bacteriology	4	Botany 130—Ident. and classification of seed plants	3
Geology 1—Genl. geology	5	Botany 131—Dendrology	2
Drawing 1—Elements of drawing	3	Top. Engr. 108—Short course in surveying	3
Electives[1]	0-2	Electives[1]	6-8
	16-18		16-18

[1]Electives should be chosen from the following: General Forestry 1, Math. 1b or 3b, Econ. Ent. 102, Bot. 146, or Animal Husbandry 1.

The U. S. Forest Products Laboratory, cooperating with the College of Agriculture, in addition to giving the subject, General Forestry 1, which is recommended as an elective, also gives Wood Technology 102, which deals with the study of wood, its properties and uses.

PRE-VETERINARY

The University of Wisconsin confers no Doctor of Veterinary Medicine degrees. The leading institutions that do confer such degrees require their students to have had at least one year of general college work to prepare them for the more highly specialized veterinary studies. To enable residents of Wisconsin to get the necessary year of college work that will qualify them for entrance in a veterinary college, the College of Agriculture offers the following one-year pre-veterinary course:

FRESHMAN YEAR

First Semester	Credits	Second Semester	Credits
Engl. 1a—Freshman composition	3	Engl. 1b—Freshman composition	3
Chem. 1a—General chemistry	5	Chem. 1b—Qualitative analysis	5
Zoology 1—Animal biology	5	Animal Husb. 1—Livestock production	3
Electives[1]	3 or 4	Electives[1]	5 or 6
Convocation	0	Physical activity requirement	0
Physical activity requirement	0		
	16-17		16-17

[1]It is suggested that the electives selected be German, French, history, zoology, mathematics, or physics. Students desiring information about veterinary medicine as a profession may elect Veterinary Science 1 in the first semester.

The cost of the year of work, shown above, will be the same as for the first year's work in the Long Course.

HOME ECONOMICS COURSE

A four-year course in Home Economics leading to the degree of Bachelor of Science (Home Economics) is given at the University under the direction of the College of Agriculture. A bulletin containing detailed information on the course in Home Eco-

nomics may be obtained by writing to the Director of Home Economics, Home Economics Building, Madison, Wisconsin.

GRADUATE WORK IN AGRICULTURE

Graduate work is offered in each of the eighteen departments in Agriculture and in the Department of Home Economics. Students wanting to take work toward a master's or doctor-of-philosophy degree will enroll in the graduate school. For further details and information relating to scholarships and fellowships, procure Graduate School bulletin from the Dean of the Graduate School, Bascom Hall, Madison, Wisconsin.

THE FARM SHORT COURSE

The Farm Short Course is designed for young men between the ages of 19 and 26 years, who expect to farm. Covering two winter periods of 15 weeks each, the course, which is held from the middle of November to the middle of March, provides training in both the natural and social sciences as they relate to the problems of Wisconsin farmers. The satisfactory completion of the work offered in the Farm Short Course entitles one to a certificate awarded by the University of Wisconsin. Further information, including a bulletin, may be obtained by writing to the Director of the Farm Short Course, College of Agriculture, Madison, Wisconsin.

THE WINTER DAIRY COURSE

To train men in the dairy industry to understand the more modern manufacturing methods, the College of Agriculture provides the twelve-weeks Winter Dairy Course beginning early in November. No entrance examination is required. However, anyone who attends must be at least 16 years of age, must have had an eighth-grade education, and must have had at least six months of practical experience in a creamery, cheese factory, or other dairy manufacturing plant. A bulletin containing detailed information on the Winter Dairy Course, the Summer Dairy Course, the Swiss-Cheese Makers Course, and the Special Dairy Manufacturers Conference may be obtained by writing to the Chairman of the Department of Dairy Industry, College of Agriculture, Madison, Wisconsin.

SHORT SERVICE COURSES

In addition to the courses mentioned heretofore, the College of Agriculture sponsors a number of short service courses which vary from one day to two weeks in length. All of these courses have been held on the campus in the past but some of them are now given throughout the state on an extension basis. The courses are as follows:

Agricultural and Home Economics Teachers' Summer Conference
Animal Breeders' School
Canners' Short Course
Cold Storage Locker Operators' Conference
Cooperative Management School
County Agents' and Home Demonstration Agents' Conference
Farm and Home Week
Farmers' Field Days
Federal Land Bank Fieldmen's School
Four-H Club Week
Garden Club Short Course
Greens-keepers' Short Course
State Judging Contests
State Junior Conservation Camp
Town-Country Leadership Summer School
Wisconsin Junior Livestock Exposition
Wisconsin Rural Life Conference

Although it is not definitely established that all of the above-mentioned courses will be offered again, it is likely that they will be given, though not necessarily on on annual basis. Persons interested in detailed information concerning any of the above courses should write to I. L. Baldwin, Assistant Dean, College of Agriculture.

DEPARTMENTS OF INSTRUCTION

Abbreviations used in the announcement of courses:
Yr.—Course continues throughout the year; I—given during the first semester; II—given during the second semester; I and II—repeated each semester; Cr.—credits, i.e. hours of credit per semester; *—credits to be arranged.

COURSE RESTRICTIONS. (1) Freshmen and sophomores are not permitted to enroll in courses numbered 100 or above; undergraduates may not take courses numbered 200 or above. (2) Undergraduates below the rank of senior, excepting juniors who are eligible for advanced work, are not permitted to carry topical work. (3) Undergraduates may not receive credit for more than two semesters of seminar in a single department.

In some instances a course may be offered in more than one department within the College of Agriculture and in departments of other colleges. In such cases the course is duplicated in the numerical listing of courses in those departments; likewise in some instances the name of the instructor is also duplicated in the faculty list following the departmental heading.

AGRICULTURAL BACTERIOLOGY

PROFESSORS BALDWIN, FRAZIER, FRED, HASTINGS, *chairman;* ASSOCIATE PROFESSORS MCCOY, SARLES, WILSON; INSTRUCTORS MCCARTER, UMBREIT.

Students majoring in this department may take Medical Bacteriology 102 or 104 or Veterinary Science 126, and count five of these credits toward the major requirement.

1. GENERAL SURVEY OF BACTERIOLOGY. I; 4 cr. Prerequisite: Chemistry 1a. Required of all agricultural students. Lab. fee $4.50. Mr. Sarles.

2. GENERAL SURVEY. II; 4 cr. Prerequisite: Chemistry 1b. For chemistry course students. Lab. fee $4.50. Mr. Wilson.

4. GENERAL SURVEY. II; 4 cr. The relation of microorganisms to foods, domestic sanitation, and hygiene. Prerequisite: Chemistry 1b. Required of professional majors in home economics. Lab. fee $4.50. Miss McCarter.

100. THESIS. Yr; 2 cr. A definite problem in dairy, food, soil, or general bacteriology. Prerequisites: Agr. Bact. 1, 2, or 4, and consent of instructor. Lab. fee $2.25 per lab. cr. Staff.

121. DAIRY BACTERIOLOGY. II; 3 cr. The bacteriology of milk and its products. Prerequisite: Agr. Bact. 1, 2, or 4, or Medical Bact. 102. Lab. fee $4.50. Mr. Hastings, Mr. Sarles.

123. SOIL BACTERIOLOGY. I; 3 cr. Study of soil microorganisms. Prerequisite: Agr. Bact. 1, 2, or 4, or Medical Bact. 102. Lab. fee $4.50. Mr. Fred.

124. ADVANCED TECHNIQUE. II; 3 cr. Training in special methods of laboratory technique. Prerequisite: Agr. Bact. 1, 2, or 4, or Medical Bact. 102, and consent of instructor. Lab. fee $6.75. Mr. Sarles.

125. FOOD BACTERIOLOGY. I; 3 cr. The microbiology of foods and of food fermentations. Prerequisite: Agr. Bact. 1, 2, or 4, or Medical Bact. 102. Lab. fee $4.50. Mr. Frazier.

126. PHYSIOLOGY OF BACTERIA. II; 3 cr. The chemistry and physics of bacterial processes. Prerequisite: Agr. Bact. 1, 2, or 4, or Medical Bact. 102. Lab. fee $4.50. Mr. Baldwin.

130. DETERMINATIVE BACTERIOLOGY. I; 2-3 cr. Isolation, characterization and classification of bacteria. Prerequisite: Agr. Bact. 1, 2, or 4, or Medical Bact. 102. Fee $2.25 per credit. Miss McCoy.

131. PROSEMINARY. Yr; 1 cr. For senior majors and students in early part of graduate study. First semester: Classification of bacteria. Miss McCoy. Second semester: History of bacteriology. Mr. Sarles.

200. RESEARCH. Yr; 2-5 cr. A detailed study of a definite problem in the field of agricultural bacteriology. Prerequisite: Agr. Bact. 121, 123, 124, 125, 126 or 130. Fee $2.25 per lab. cr. Staff.

231. SEMINARY. Yr; 1 cr. Reviews of bacteriological subjects and reports on research work in the department. Mr. Frazier.

AGRICULTURAL ECONOMICS

PROFESSORS CHRISTENSEN, HOBSON, *chairman*, MCNALL, ROWLANDS, WEHRWEIN; ASSOCIATE PROFESSORS ANDERSON, BAKKEN, FROKER, HALL, MORTENSON, SCHAARS; ASSISTANT PROFESSORS EBLING, ERDMANN, MITCHELL, PARSONS, SALTER; INSTRUCTOR HEDGES; LECTURER RILEY.

Agricultural economics courses are intended to give students a knowledge of economic principles relating to agriculture. The courses deal with production, marketing, cooperation, credit, prices, foreign trade, agricultural relations, land policies, farm tenure, farm management, and agricultural policies.

Students may take agricultural economics: first, as a full major by those who decide to make it a main line of study preparatory to teaching, research, or other economic work; second, as a joint major with work in other departments; and third, as a full major by students interested in agricultural commerce. The agricultural commerce program of study should be arranged by the student in consultation with his adviser in the Department of Agricultural Economics.

Students are advised to take Economics 1a and 1b and Agricultural Economics 1 and 8 in the sophomore year.

1. PRINCIPLES OF AGRICULTURAL ECONOMICS. II; 3 cr. Required of all agricultural students. Prerequisite: Econ. 1a. Mr. Parsons.

8. FARM RECORDS AND ACCOUNTS. I; 2 cr. Includes principles and techniques of double entry bookkeeping; interpretation of farm financial and operating statements. Mr. Mitchell.

10. FARM ORGANIZATION AND MANAGEMENT. II; 3 cr. Methods and practices applied to farm business management. Prerequisite: Junior standing. Mr. Mitchell.

14. FARM BUSINESS AND LEGAL PRACTICE. II; 3 cr. Mr. Riley.

100. THESIS. Yr; 2 cr. Staff.

106. CROP AND LIVESTOCK ESTIMATING. I; 3 cr. Methods of collecting agricultural statistics and their use in teaching, extension, and research. Prerequisite: Agr. Econ. 1 or Econ. 1b. Mr. Ebling, Mr. Anderson.

117. OUTLINES OF LAND ECONOMICS. I; 3 cr. Economic principles underlying utilization and conservation of land or natural resources. Prerequisite: Agr. Econ. 1 or Econ. 1b. Mr. Wehrwein, Mr. Salter.

126. INTERNATIONAL TRADE IN AGRICULTURAL PRODUCTS. I; 3 cr. Theories of foreign trade; foreign exchange; history and analysis of agricultural exports and imports; governmental aids and restrictions to trade. Prerequisite: Econ. 1a. Mr. Schaars.

127. COOPERATION. I, II; 3 cr. Analysis of marketing organizations, methods and theory underlying producer and consumer cooperatives at home and abroad. Prerequisite: A course in marketing or consent of instructor. Mr. Bakken.

128. MARKETING AGRICULTURAL PRODUCTS. I; 3 cr. Principles and practices of agricultural marketing; market prices and costs; case studies. Prerequisite: Econ. 1a. Mr. Schaars.

129. COOPERATIVE MANAGEMENT PROBLEMS. I; 2 cr. Consideration of business structure of cooperative associations; problems involving organization, membership relations, financing, trade and sales practices, administrative policies. Prerequisite: Agr. Econ. 127 or consent of instructor. Mr. Hobson, Mr. Froker.

152. FARMER MOVEMENTS. I; 3 cr. History of farmers' efforts to improve their status through organizations designed to control markets and influence legislation. Prerequisite: Econ. 1a or consent of instructor. Mr. Hobson.

155. PRICES OF AGRICULTURAL PRODUCTS. II; 3 cr. Analysis and intepretation of factors affecting agricultural prices; study of price movements, trends, and cycles. Prerequisite: Agr. Econ. 1 or Econ. 1b. Mr. Mortenson.

179. URBAN LAND ECONOMICS. II; 3 cr. Urbanization, location, and structure of cities, urban land utilization, home ownership and tenancy, housing and credit, zoning, city and regional planning. Prerequisite: Agr. Econ. 1 or Econ. 1b. Mr. Wehrwein.

180. TOPICAL WORK. Yr; *cr. Staff.

192. RURAL PLANNING. II; 3 cr. Principles of rural-regional planning applied to a county. Only one credit of this course may be counted toward a major in Agricultural Economics. Prerequisite: Consent of instructors. Mr. Aust, Mr. Kolb, Mr. Wehrwein.

200. RESEARCH. Yr; *cr. Cooperation and marketing. Mr. Hobson, Mr. Bakken, Mr. Froker, and Mr. Schaars. Surveys and financial accounts in relation to farm management, Mr. McNall and Mr. Mitchell. Organized farmer movements, Mr. Hobson. Taxation and farm credit, Mr. Parsons. Land economics and problems, Mr. Wehrwein, Mr. Salter. Crop and livestock estimating and agricultural data, Mr. Anderson, Mr. Ebling. Agricultural prices and statistics, Mr. Mortenson. International trade and agricultural policies, Mr. Hobson, Mr. Schaars.

221. LAND INCOME. I; 3 cr. Economics of land utilization, theories of rent, principles of land evaluation and taxation. Prerequisite: Graduate standing. Mr. Wehrwein.

226. SEMINARY: LAND PROBLEMS. Yr; 2 cr. Land tenure and utilization in principal countries. Prerequisite: Agr. Econ. 117, 229, or concurrent registration. Mr. Wehrwein.

228. SEMINARY: THEORY OF MARKETS AND MARKETING. II; 2 cr. A study of the historical development of markets, modern market institutions such as auctions, clearing houses, exchanges, and boards of trade. (Given in 1940-41 and in alternate years.) Mr. Bakken.

229. SEMINARY: ADVANCED AGRICULTURAL ECONOMICS. I; 3 cr. The field of agricultural economics with respect to its origin and main issues. **Mr. Parsons, staff.**

252. SEMINARY: AGRICULTURAL POLICIES. II; 2 cr. Analysis of governmental aids to agriculture in the United States and abroad. Mr. Hobson.

255. SEMINARY: PRICE ANALYSIS. II; 3 cr. Application of statistical and other methods involved in analyzing agricultural price and related problems. Prerequisite: Econ. 130 or equivalent. (Given in 1941-42 and in alternate years.) Mr. Mortenson.

AGRICULTURAL EDUCATION

PROFESSORS BEWICK, CLARK, JAMES, *chairman*, KIVLIN; INSTRUCTORS FREITAG, MORRISSEY.

Students in the College of Agriculture who wish to prepare for the teaching of agriculture in secondary schools must complete a major and certain elective courses in animal husbandry, poultry, dairying, agronomy, horticulture, soils, agricultural en-

gineering, agricultural economics, and agricultural journalism as a background of agriculture and also the eighteen credits in education required for the University Teachers' Certificate as outlined below.

Some students wish a major in a department other than agricultural education and also to be prepared as teachers of vocational agriculture. Students desiring this combination should see the chairman of the Department of Agricultural Education early in the sophomore year. Farm experience beyond summers is necessary; the farm-reared students are desired. A scholarship record of 1.3 grade-points per credit is necessary to begin teacher training preparation.

Students completing the requirements for graduation in agriculture as suggested above and qualifying for a University Teachers' Certificate will receive the degree Bachelor of Science (Agriculture and Education) and a license to teach issued by the State Superintendent of Public Instruction. Such students must (a) register for the certificate in the School of Education at the beginning of the junior year; (b) receive the recommendation of the teacher training committee of the College of Agriculture; and (c) complete the following courses:

	Credits
Educ. 73—The Child:—His nature and his needs	3
Educ. 75—The nature and direction of learning	5
Agr. Educ. 1—Rural education	2
Agr. Educ. 50—Teaching of agriculture	5
Agr. Educ. 128—Program building in vocational agriculture	3

Students beginning work for a certificate may arrange their courses most satisfactorily by starting the requirements during the second semester of the sophomore year. Education 75 should definitely be completed before the beginning of the senior year. Credits in Education 75 may be counted toward graduation only by students who complete the requirements for the University Teachers' Certificate. Each senior spends a week each semester in a high-school vocational agricultural department.

MAJOR. Not more than 5 credits in education taken in the School of Education may count toward the major in agricultural education. These 5 credits shall in no way be counted as a portion of the 50 credits required in the strictly agricultural subjects. Course 103, 2 credits, given jointly by the departments of Horticulture and Agronomy may be counted as a portion of the five credits of the major requirement outside the Department of Agricultural Education.

1. RURAL EDUCATION. II; 2 cr. Origin and development of vocational education for rural communities. Problems, principals, and practices of rural education. Prerequisite: Sophomore standing. Mr. James.

5. JUNIOR EXTENSION. I; 2 cr. Place of boys' and girls' clubs in rural education. Educational values, methods of organization, leadership, meetings, demonstrations, follow-up materials, exhibits and reports. Mr. Bewick.

25. RURAL LIFE. (Rural Sociology 25). I; 3 cr. Counts as part of agricultural education major. Mr. Kolb.

50. TEACHING OF AGRICULTURE. I, II; 1-5 cr. Directed teaching based upon participation in agricultural activities of the Wisconsin High School, and vocational departments of agriculture. Prerequisites: Education 75 and senior standing. Mr. Kivlin, Mr. Freitag, Mr. Morrissey.

100. THESIS. Yr; 2 cr. Problems of agricultural extension or teaching. Staff.

103. SEMINARY. I, II; *cr. Problems in rural education for extension workers, teachers, and rural leaders. Mr. James.

110. TRAINING COURSE FOR COUNTY AGENTS. II; 2 cr. The county agent's responsibilities, his projects, plans for work, and county organization. Open only to seniors and graduate students. Offered 1940-41 and alternate years. Mr. Clark.

128. PROGRAM BUILDING IN VOCATIONAL AGRICULTURE. I, II; 3 cr. The program of work, directed practice, part-time and evening school, etc., adapted to teaching agriculture in secondary schools. Prerequisites: Agr. Educ. major and senior standing. Mr. James.

200. RESEARCH. Yr; *cr. Problems of vocational, extension, or demonstration work. Mr. James, Mr. Clark.

AGRICULTURAL ENGINEERING

PROFESSOR DUFFEE, *chairman;* ASSOCIATE PROFESSORS TRENK, WITZEL, ZEASMAN; ASSISTANT PROFESSOR LA ROCK; INSTRUCTORS BRUHN, CARTER.

A five-year course combining agriculture with either civil, electrical, or mechanical engineering is organized for the training of agricultural engineers. The complete curriculum for civil, electrical, or mechanical engineering as combined with agriculture may be obtained from the departmental office. Upon completion of four years of required work, including 50 credits in agriculture, the B.S. (Agriculture) degree is granted, with a B. S. degree in civil, electrical, or mechanical engineering after the fifth year, if all requirements have been met. Freshman majors in professional Agricultural Engineering should consult the chairman of the department before or during the first semester, to arrange the proper sequence of courses. Mathematics 51 should be substituted for Mathematics 71.

Students desiring to enter sales, advertising, or service work with industries selling agricultural equipment are advised to follow the agricultural equipment industry major listed on pages 223 and 224.

Students inclined toward engineering and desiring to return to their farms are advised to major in non-technical agricultural engineering. This major may be combined with other key subjects in agriculture to provide thorough training for farm operation and management.

1. SURVEYS AND STRUCTURES. I, II; 4 cr. Agricultural surveying; drainage; farm-building economics, costs, requirements and planning. Lab. fee $4.50. Mr. Witzel.

5. POWER AND MACHINERY. I, II; 5 cr. Construction, operation, adjustment and management of farm field machinery, gasoline engines, electric motors and water systems. Lab. fee $4.50. Mr. Duffee, Mr. Bruhn.

9. FARM MECHANICS. II; 3 cr. A course designed for students planning to teach vocational agriculture in high schools. Lab. fee $4.50. Mr. Thoreson.

100. THESIS. Yr; 2 cr. Prerequisite: Senior standing. Fee $2.25 per lab. cr. Staff.

101. DRAINAGE AND IRRIGATION ENGINEERING. I; 2 cr. Field surveys and designs for farm and community drainage systems. Design of irrigation systems. Prerequisite: Agr. Engr. 1, or Top. Engr. 1 and 2. Lab. fee $2.25. Offered 1941-42 and in alternate years. Mr. Witzel, Mr. Zeasman.

105. FARM TRACTORS AND TRACTOR MACHINERY. II; 4 cr. Construction, operation, care and adjustment of tractors and tractor machinery. Prerequisite: Agr. Engr. 5. Lab. fee $4.50. Mr. Duffee, Mr. Bruhn.

106. SOIL EROSION. I; 4 cr. (Also listed as Soils 106.) Causes and control by means of soil management and engineering practices. Only two credits of this course may be counted toward a major in Agricultural Engineering. Prerequisites: Soils 1 and a course in topography. Lab. fee $4.50. Mr. Zeasman, Mr. Whitson.

121. SEMINARY. I; 1 cr. Review of current literature and studies of agricultural engineering problems. Mr. Duffee and staff.

180. SPECIAL PROBLEMS. I, II; *cr. Open only to advanced students in professional agricultural engineering. Fee $2.25 per lab. cr. Staff.

200. RESEARCH. Yr; *cr. Agricultural engineering problems. Prerequisite: Graduate standing. Fee $2.25 per lab. cr. Staff.

ELECTIVES GIVEN BY FOREST PRODUCTS LABORATORY STAFF

1. General Forestry. I; 2 cr. An outdoor study of trees. Natural forest conditions and the development of forest policy in the United States and elsewhere. No prerequisite. Mr. Tiemann.

102. Wood Technology. II; 2 cr. Wood as a biological product; its anatomy and variation with species; properties and uses; moisture relations and kiln drying. Prerequisite: Knowledge of physics, mechanics, and simple organic chemistry. Mr. Tiemann.

These two courses form a logical sequence, and cover subjects with which anyone who intends going into the fields of wood utilization or any of its branches should be thoroughly conversant. The two courses may be taken consecutively or in different years.

AGRICULTURAL JOURNALISM

Professors Hopkins, *chairman*, Sumner; Assistant Professor Langdon; Instructors Bliss, Rasmussen.

Agriculture must be made more articulate. To render the greatest service the technically trained worker must use the printed page. The ability to write simply and understandably is invaluable to the teacher, the extension worker, and the farmer. Selling and advertising are important in the neglected half of farming—the business side. More and more farmers are coming to appreciate the need for salesmanship, sales letter writing, effective classified and display advertisement, and systematic sales campaigns.

For students returning to the farm, Agricultural Journalism 1 and 3 are suggested. For prospective teachers and extension workers, courses 1, 3, and 103 are recommended. For research workers and future college staff workers Agricultural Journalism 1 and 103 are advised.

Majors in the department will be expected to take Agricultural Journalism 1, 2, 3, 100, 103, 111, and 150. Courses in the Department of Journalism in the College of Letters and Science should be taken in addition, and not to exceed 5 credits from the following courses may count toward the major: Journalism 2, Newspaper reporting and correspondence; Journalism 3, Copy reading.

Home Economics students majoring in the department will be expected to take Agricultural Journalism 8, 103, 106, and 111. The following courses in the School of Journalism should be taken and count toward the major: 2, Newspaper reporting; 3, Copy reading; 123, Women's departments in newspapers and magazines.

1. Agricultural News Writing. I, II; 3 cr. Mr. Sumner.

2. Practice in Editing. I, II; 1 cr. Prerequisite: A semester's work on the *Country Magazine* or equivalent. Mr. Sumner.

3. Agricultural Advertising. I, II; 3 cr. Mr. Sumner.

8. Home Economics News Writing. I; 3 cr. Mr. Sumner.

10. Technical Writing. II; 2 cr. Direction and practices in reporting scientific work. Prerequisite: Senior standing. Mr. Hoveland.

18. Farm and Home Radio Writing. I; 2 cr. Includes a general survey of radio; continuity writing; script editing; news gathering and preparation; program planning and auditing; radio style. Prerequsites: Junior standing, Speech 110, or consent of instructor. Mr. Bliss.

100. Thesis. Yr; 2 cr. Mr. Hopkins, Mr. Sumner.

103. Extension Media and Methods. II; 2 cr. Prerequisite: Agr. Journ. 1 or 8. Mr. Hopkins.

105. Writing and Editing Bulletins. I; 2 cr. Prerequisite: Senior or graduate standing. Miss Langdon.

111. Writing Farm and Home Features. II; 2-3 cr. Mr. Sumner.

150. Seminary. I, II; 2 cr. Mr. Sumner.

180. Methods and Problems. I, II; *cr. Mr. Hopkins.

200. Research. I, II; *cr. Mr. Hopkins, Mr. Sumner.

AGRONOMY

Professors Briggs, Delwiche, Graber, *chairman*, Leith, Wright; Assistant Professors Ahlgren, Albert, Holden, Neal, Shands, Smith; Instructors Burcalow, Strommen, Turner.

Not to exceed five credits from the following courses may be counted as a portion of the major requirement in Agronomy:

Soils 26, Soils 127, Pl. Path. 101, Botany 117, Botany 129, Genetics 104, and Agr. Engr. 106.

1. Principles and Practices in Crop Production. I, II; 3 cr. A survey of plant science with emphasis on the applications to agronomic practice. Required of all agricultural students. Lab. fee $4.50. Mr. Graber and Mr. Ahlgren.

100. Thesis. Yr; 2 cr. Investigation of problems in agronomy. Subject should be chosen early. Fee $2.25 per lab. cr. Staff.

102. Pastures and Pasture Problems. I; 2 cr. The establishment, maintenance, and improvement of pastures. Prerequisites: Agronomy 1 and preferably some courses in soils and botany. Mr. Ahlgren.

103. Crop Identification and Standards. I; 2 cr. (Also listed as Horticulture 103). A laboratory study of the classification, identification and standard of excellence of field, orchard and garden crops. Lab. fee $2.25. Only one credit of this course may be counted toward a major in Agronomy. Mr. Holden, Mr. James G. Moore.

104. Grain Crops. I; 3 cr. Grading, varieties, distribution, culture and commercial utilization. A trip to Milwaukee to visit grain and stock exchange and cereal industries. Lab. fee $2.25. Mr. Leith, Mr. H. L. Shands.

106. Forage Problems. II; 3 cr. Problems related to the culture of alfalfa, clovers, grasses, and other forages, with emphasis on physiology, food reserves, morphology, and survival. Mr. Graber.

120. Seed and Weed Control. I; 3 cr. Classification, identification, and control of weeds and their seeds or fruits. Prerequisite: Agronomy 1. Lab. fee $4.50. Staff.

130. The Improvement of Agronomic Plants. I; 2 cr. Methods and principles involved in breeding. Prerequisite: Genetics 1 or consent of instructor. Staff.

131. Seminary. Yr. 1 cr. A review of current literature and studies of agronomic problems. For seniors and graduate students. Prerequisites: Agronomy 1 and Botany 1. Staff.

180. Special Crop Problems. Yr; *cr. Offered at Madison and the branch experiment stations. Prerequisite: Senior standing. Fee $2.25 per lab. cr. Staff.

190. Experimental Design. II; 3 cr. The application of statistical methods to laboratory and field experiments. Prerequisite: Preferably some course in statistics. Lab. fee $2.25. Mr. Torrie.

200. Research. Yr; *cr. Agronomic problems for students qualifying for advanced degrees. Fee $2.25 per lab. cr. Staff.

ANIMAL HUSBANDRY

PROFESSORS BOHSTEDT, FULLER; ASSOCIATE PROFESSORS DARLOW, *chairman*, LACEY; ASSISTANT PROFESSORS FARGO, ROCHE.

The courses offered in this department teach the principles of livestock production and are intended for students going into teaching in either high school or college, and for those planning to do extension or county agent work, as well as for those who expect to take up farming.

Not to exceed five credits from the following courses may be counted as a portion of the major requirement in animal husbandry: Biochemistry 110, Genetics 103, Veterinary Science 28 and 29.

1. LIVESTOCK PRODUCTION. I, II; 3 cr. (Same as Dairy Husbandry 1.) Present status of livestock development; judging, market classification and practical problems; lectures and laboratory exercises. Required of all agricultural students. Lab fee $4.50. Mr. Fuller, Mr. Darlow, Mr. Fargo, and Dairy Husbandry staff.

2. HISTORY OF BREEDS. II; 2 cr. Origin and development of breeds of beef cattle, horses, sheep, and swine. Biography and methods of foundation breeders, pedigrees, breed character study, distribution, and utility. Prerequisite: An. Husb. 1. Mr. Fuller.

3. LIVESTOCK SELECTION. II; 1 or 2 cr. Standards of excellence for market, showyard, and breeding animals. (May be elected for only one credit by those having earned 2 credits in Dairy Husbandry 5). Prerequisite: An. Husb. 1. Not open to freshmen. Lab. fee $2.25. Mr. Darlow.

5. MEAT PRODUCTION AND CARCASS VALUE. I; 2 cr. A study of meat characteristics; the effect of type, feed, and condition on the quality, yield, and value of carcasses of beef, mutton, and pork. Prerequisite: An. Husb. 1. Lab. fee $4.50. Mr. Fargo.

100. THESIS. Yr; 2 cr. Fee $2.25 per lab. cr. Staff.

126. LIVESTOCK FEEDING. I; 4 cr. (Same as Dairy Husbandry 126). A study of the principles of feeding and the composition of feeds; practice in formulating rations for the various classes of livestock. May not be elected for credit by those having elected Dairy Husbandry 126. Lab. fee $2.25. Mr. Bohstedt, Mr. Roche.

130. SWINE AND SHEEP PRODUCTION. II; 3 cr. A study of systems of production, management practices, and methods of marketing. Prerequisite: An. Husb. 1. Lab. fee $2.25. Mr. Fargo, Mr. Darlow.

131. HORSE AND BEEF CATTLE PRODUCTION. I; 3 cr. Development and status of the horse and beef cattle industries; production and marketing of purebred and commercial animals. Prerequisite: An. Husb. 1. Lab. fee $2.25. Mr. Fuller.

134. LIVESTOCK BREEDING. II; 3 cr. (Same as Dairy Husbandry 134). Scientific methods of breeding farm livestock; survey of known inheritance in farm animals; control of characters of economic importance; progeny tests and herd analysis. Prerequisite: Genetics 1 or consent of instructor. (May not be elected for credit by those having elected Dairy Husbandry 134). Mr. Heizer.

135. SEMINARY. I, II; 1 cr. (Same as Dairy Husbandry 135). Studies and discussions of research work in animal husbandry and related fields; reports on articles of interest. For advanced and graduate students. Mr. Bohstedt.

180. SPECIAL PROBLEMS. Yr; *cr. Special problems on feeding, management, selection, or breeding of livestock including laboratory, library, or field work with conferences and reports. Prerequisite: Consent of instructor. Staff.

200. RESEARCH. Yr; *cr. A study of a definite research problem in animal husbandry. Mr. Bohstedt and staff.

BIOCHEMISTRY

PROFESSORS ELVEHJEM, HART, *chairman*, LINK, PETERSON, STEENBOCK; ASSOCIATE PROFESSORS PHILLIPS, TOTTINGHAM; ASSISTANT PROFESSORS BAUMANN, STRONG; INSTRUCTORS JOHNSON, PLATZ.

The courses offered in this department are intended to give a broad view of biological chemistry useful to the general agricultural student, and to develop men fitted for instructional or experimental work in the various fields of chemical activity applied to agriculture. Courses 110 and 120 are for students desiring a more detailed knowledge of the special subjects treated and are preliminary to greater specialization. These courses should be preceded or accompanied by work in biology and organic chemistry. Physiology and bacteriology are desired prerequisites. All other advanced courses in this department are open to undergraduates and graduates who have had the necessary preliminary training.

1. ELEMENTARY BIOCHEMISTRY. II; 2 or 4 cr. Introduction to the chemistry of living matter. Laboratory work includes chemical analysis of agricultural materials. Prerequisite: Chemistry 1b. Lab. fee $4.50. Mr. Elvehjem.

3. FOOD BIOCHEMISTRY. I; 4 cr. Lectures and laboratory work on the chemistry and metabolism of the essential food constituents: carbohydrates, fats, proteins, etc. Required of all home economics students. Prerequisite: Chemistry 1b. Lab. fee $4.50. Mr. Peterson and Mr. Strong.

100. THESIS. Yr; 2 cr. May be taken in plant, animal, fermentation, or dairy chemistry. Fee $2.25 per lab. cr. Staff.

110. PRINCIPLES OF BIOCHEMISTRY. I; 3 or 5 cr. The biochemistry of lipids, carbohydrates, proteins, inorganic elements, water, enzymes, and other constituents of the cell. Three lectures, 3 cr; two laboratory periods, 2 cr. Prerequisites: Chemistry 12; also 20 and 21 or 120 and 121. Lab. fee $4.50. Mr. Elvehjem, Mr. Hart, Mr. Link, Mr. Peterson, Mr. Steenbock, Mr. Tottingham.

120. PLANT BIOCHEMISTRY. II; 2 or 5 cr. The mechanism of chemical processes in the growth of plants, including the effect of environmental factors. Selected methods for the determination of plant constituents. Prerequisites: Chemistry 1b and 20 or 120. Fee $2.25 per lab. cr. Mr. Tottingham.

121. DAIRY CHEMISTRY. I; 2 or 5 cr. The chemistry of milk and its products, including the chemistry of fermentation and detection of adulterants. Prerequisites: Chemistry 12; also 20 and 21 or 120 and 121. Fee $2.25 per lab. cr. Mr. Hart.

125. ANIMAL METABOLISM AND VITAMINS. II; 3-4 cr. Caloric relations; the chemistry of urine, blood, bone, and other tissues and vitamins, with feeding experiments on animals. Two lectures and two laboratory periods. Prerequisite: Biochemistry 110 or its equivalent. Fee $2.25 per lab. credit. Mr. Steenbock.

126. MODERN VIEWS OF ANIMAL NUTRITION AND THEIR APPLICATION. II; 2 cr. A course of lectures and conferences on the newer knowledge of nutrition applied to man, poultry, dairy cattle, swine, etc. Prerequisite: Biochemistry 110 or 121, or the equivalent. Mr. Hart.

127. FERMENTATION BIOCHEMISTRY. II; 2-4 cr. Lectures on the chemical composition of microorganisms and the mechanism of fermentation processes; laboratory work on products of fermentation. Prerequisites: Biochem. 110 or its equivalent for lectures; also Agr. Bact. 1 for laboratory. Fee $2.25 per lab. credit. Mr. Peterson and Mr. Johnson.

129. ENZYMES. I; 2 cr. A course of lectures and conferences dealing with the chemistry and mechanism of the action of recognized enzymes and the importance of their action in living tissues. Prerequisite: Biochem. 110. Mr. Elvehjem and Mr. Johnson.

130. Advanced Biochemical Preparations. I; 2-3 cr. Designed to give experience in the preparation and isolation of natural products from plant or animal sources or through synthesis. Prerequisites: Biochem. 110, Chem. 120 and 123. Enrollment limited to majors in the department. Mr. Link.

200. Research. Yr; *cr. Carbohydrate and plant chemistry, Mr. Link. Plant nutrition and plant metabolism, Mr. Tottingham. Chemistry of microorganisms, Mr. Peterson, Mr. Strong. Animal chemistry and animal nutrition, Mr. Elvehjem, Mr. Hart, Mr. Phillips, Mr. Steenbock. Dairy chemistry, Mr. Hart. Fee $2.25 per lab. cr.

233. Seminary. Yr; 1 cr. Original articles of importance are studied in detail, to broaden and deepen the understanding and to act as a stimulus to further research. Mr. Elvehjem and Mr. Link.

DAIRY HUSBANDRY

Professors Bohstedt, Humphrey; Associate Professor Heizer, *chairman;* Assistant Professors Collentine, Cramer, Rupel, Vergeront; Instructors Dickerson, Harris, Werner.

Instruction in dairy husbandry is designed to serve the needs of those looking forward to a given field of activity, such as (1) dairy farm operation and herd management; (2) investigation, teaching or extension; or (3) work in industries allied to agriculture.

The dairy farm operator or herdsman will be especially interested in training in all phases of breeding, feeding, management, and selection of dairy cattle. Anyone planning a career in research, teaching, or extension may want to specialize in some one phase of work after getting a fundamental background in dairy husbandry. Those interested in commercial work may include such courses in dairy husbandry as will serve them best in the field they have in view. Courses of study suggested for each field of interest may be obtained, in mimeograph form, from the department office.

1. Livestock Production. I, II; 3 cr. (Same as Animal Husbandry 1). Present status and history of livestock development, judging, market classification; practical problems, lectures, and laboratory exercises. Required of all agricultural students. Lab. fee $4.50. Dairy and Animal Husbandry staffs.

4. Elements of Dairy Husbandry. I; 2 cr. Introduction to the field of dairy production; a survey course. Required course for Dairy Husbandry majors. Prerequisite: Dairy Husb. 1. Lab. fee $2.25. Staff.

5. Dairy Cattle Selection. II; 1-2 cr. Modern standards of excellence in selecting dairy cattle. (May be elected for only one credit by those having earned two credits in Animal Husbandry 3.) Prerequisite: Dairy Husb. 1. Lab. fee $2.25. Mr. Rupel.

6. Development of Dairy Cattle Breeds and Families. I; 3 cr. Dairy breeds in their native lands and America. Factors which have contributed to success or failure of leading breeding establishments. Pedigree studies of important families. Prerequisite: Dairy Husb. 1. Lab. fee $2.25. Mr. Heizer.

126. Livestock Feeding. I; 4 cr. (Same as Animal Husbandry 126). A study of the principles of feeding and the composition of feeds; practice in formulating rations for the various classes of livestock. Lab. fee $2.25. (May not be elected for credit by those having elected Animal Husbandry 126). Mr. Bohstedt, Mr. Roche.

133. Dairy Cattle and Milk Production. II; 3 cr. Dairy herd management, care, and replacement. An inspection tour costing $2 to $3 is included. Prerequisites: Dairy Husbandry 1 and preferably Dairy Husbandry 126. Lab. fee $2.25. Mr. Rupel.

134. Livestock Breeding. II; 3 cr. (Same as Animal Husbandry 134). Scientific methods of breeding farm livestock; survey of known inheritance in farm animals; con-

trol of characters of economic importance; progeny tests and herd analysis. Prerequisite: Genetics 1, or consent of instructor. (May not be elected for credit by those having elected Animal Husbandry 134.) Mr. Heizer.

135. SEMINARY. I, II; 1 cr. (Same as Animal Husbandry 135). Studies and discussions of research work in dairy husbandry and related fields; reports on articles of interest. For advanced and graduate students. Mr. Bohstedt.

180. SPECIAL PROBLEMS. Yr; *cr. Topical work in dairy husbandry. Prerequisite: Consent of instructor. Fee 2.25 per lab. credit. Staff.

200. RESEARCH. Yr; *cr. A detailed study of a definite research problem in dairy husbandry. Fee $2.25 per lab. credit. Mr. Bohstedt and staff.

DAIRY INDUSTRY

PROFESSORS JACKSON, *chairman*, PRICE, SOMMER; ASSOCIATE PROFESSOR THOMSEN; ASSISTANT PROFESSORS WALLENFELDT, WECKEL; INSTRUCTOR BUCK.

The department offers instruction in the science and art of manufacturing dairy products, suited to the needs of (a) farm dairymen, (b) investigators and teachers, (c) managers, operators, and inspectors of creameries, cheese factories, city milk, ice cream plants, and condenseries, and (d) engineers.

Positions available to dairy majors are not limited to the farm, the factory or the laboratory. Some graduates are employed in such activities as the design and manufacture of dairy equipment, the selling of dairy supplies and machinery, and the sales promotion of dairy products. Students desiring to major in the department and who do not wish to become research workers or dairy technologists may take work in Engineering or Commerce. Those who desire to become dairy engineers should work out their program with staff members of the department.

1. INTRODUCTION TO DAIRYING. II; 3 cr. General survey to show the relationship of dairy manufacturing to general farm problems. Emphasis on quality control, grading, and elementary analysis of dairy products. Lab. fee $4.50. Mr. Jackson, Mr. Thomsen, Mr. Weckel.

100. THESIS. Yr; 2 cr. Fee $2.25 per lab. cr. Prerequisite: Senior standing. Staff.

103. CREAMERY OPERATION AND MANAGEMENT. I; 3 cr. The manufacture of creamery butter and other products often made in connection with creamery operation. Emphasis is placed on quality and on management. Prerequisite: Dairy Industry 1. Lab. fee $4.50. Mr. Jackson, Mr. Thomsen.

104. CHEESE. II; 4 cr. Commercial practices and principles of curd-making and cheese-ripening. Prerequisite: Dairy Industry 1. Lab fee $4.50. Mr. Price.

105. MARKET MILK. I; 3 cr. Production and commercial handling, processing, and distribution of market milk and related products. Quality, public health regulations, laboratory procedures and problems. Prerequisite: Dairy Industry 1. Lab. fee $4.50. Mr. Weckel.

106. ICE CREAM AND CONDENSED MILK PRODUCTS. II; 3 cr. The theory and practice of manufacturing ice cream, milk powder, malted milk, condensed milk, and evaporated milk. Quality factors and defects in these products. Prerequisite: Dairy Industry 1. Lab. fee $4.50. Mr. Sommer.

108. DAIRY MECHANICS. II; 3 cr. Dairy plant construction, heating, ventilation, power plant operation, sewage disposal, refrigeration, installation, testing, and operation of dairy machinery. Includes an optional two-day field trip. Lab. fee $2.25. Mr. Thomsen.

123. SEMINARY. Yr; 1 cr. Prerequisite: Senior standing. Mr. Sommer and staff.

124. PHYSICAL CHEMISTRY OF DAIRY PRODUCTS. II; 3 cr. Lectures and laboratory exercises on hydrogen ion concentration, oxidation-reduction potentials, surface tension, absorption, viscosity, plasticity, isoelectric point of proteins, colloidal properties of milk constituents. Lab. fee $4.50. Mr. Sommer.

180. Advanced Dairy Manufacturing Problems. Yr; *cr. Problems relating to dairy manufacturing and quality of dairy products. Prerequisite: Senior standing or consent of instructor. Fee $2.25 per lab. cr. Staff

200. Research. Yr; *cr. Experimental study of problems in dairy manufacturing. Fee $2.25 per lab. cr. Staff.

ECONOMIC ENTOMOLOGY

Professors Fluke, Wilson, *chairman*; Associate Professor Farrar; Assistant Professors Allen, Searls; Instructors Callenbach, Lilly, Schaefer.

Students majoring in Economic Entomology have an opportunity to enter state and government service. Those preparing for commercial positions should elect additional courses in physics and chemistry.

For graduate work in entomology and beekeeping, write to the chairman of the Department of Economic Entomology for additional information.

1. Elementary Entomology. (Farm Insects). II; 3 cr. A general collection of insects is required of each student. Lab. fee $4.50. Mr. Fluke.

10. Elementary Beekeeping. II; 3 cr. Elementary principles of beekeeping. Lab. fee $2.25. Mr. Farrar.

100. Thesis. Yr; 2 cr. Fee $2.25 per lab. cr. Mr. Wilson and staff.

102. Insect Morphology and Taxonomy. I; 3 cr. Prerequisite: Economic Entomology 1 or equivalent. Lab. fee $4.50. Mr. Fluke.

103. Orchard Insects. I; 2 cr. A study of the insect pests of the orchard and bush fruits. Prerequisite: Economic Entomology 1 or 102, or a course in Zoology. Offered 1941-42 and in alternate years. Lab. fee $2.25. Mr. Fluke.

105. Field Crop and Garden Insects. II; 2 cr. A study of the insect pests of field, garden, and truck crops. Prerequisite: Economic Entomology 1 or 102, or a course in Zoology. Offered 1941-42 and in alternate years. Lab. fee $2.25. Mr. Searls.

107. Principles of Insect Control. I; 3 cr. The preparation, uses and toxicities of insecticides and their applications. Offered 1940-41 and in alternate years. Prerequisites: Chemistry 1b and consent of instructor. Lab. fee $2.25. Mr. Allen.

120. Insect Ecology. II; 3 cr. Insects in relation to their environment. Prerequisite: Economic Entomology 1 or 102, or a course in Zoology. Offered 1940-41 and in alternate years. Lab. fee $2.25. Mr. Lilly.

123. Taxonomy of Insect Larvae. I; 3 cr. The identification and morphology of immature insects. Prerequisites: Economic Entomology 102 or consent of instructor. Offered 1940-41 and in alternate years. Lab. fee $4.50. Mr. Searls.

125. Insects in Relation to Plant Disease. I; 2 cr. The principal insect vectors and their habits; modes of insect transmission and dissemination of plant diseases. Prerequisite: A course in entomology and plant pathology or consent of instructor. Offered 1941-42 and in alternate years. Lab. fee $2.25. Mr. Searls.

130. Seminary. I, II; 1 cr. Prerequisite: Senior standing. Mr. Wilson.

180. Topical Work. I, II; *cr. Taxonomy, methods, etc. Senior standing. Fee $2.25 per lab. cr. Staff.

200. Research. Yr; *cr. Fee $2.25 per lab. cr. Mr. Wilson and staff.

GENETICS

PROFESSORS BRINK, *chairman,* COLE, IRWIN; ASSOCIATE PROFESSORS CASIDA, RIEMAN; ASSISTANT PROFESSORS CHAPMAN, COOPER, NEAL, SMITH; INSTRUCTORS DICKERSON, FERGUSON; RESEARCH ASSOCIATE CUMLEY.

The following courses are designed for those seeking a broad knowledge of heredity in relation to animal and plant breeding, and for students desiring to prepare themselves for instructional work and research in genetics.

1. PRINCIPLES OF BREEDING. I; 4 cr. Elementary principles of heredity in their application to plant and animal breeding. Prerequisite: A college course in botany or zoology. Lab. fee $2.25. Mr. Chapman, staff.

100. THESIS. Yr; 2 cr. Fee $2.25 per lab. cr. Staff.

103. REPRODUCTION OF FARM ANIMALS. II; 2 cr. The process of reproduction and the internal and external factors affecting it. Prerequisite: Genetics 1 or Physiology 3 or Veterinary Science 1. Mr. Casida.

104. PLANT GENETICS. II; 3 cr. Mechanism of Mendelian heredity; genic and chromosomal variation; principles of plant improvement. Prerequisite: Genetics 1. Mr. Brink.

105. ANIMAL GENETICS. II; 3 cr. Genetics of domesticated animals; principles underlying selection, inbreeding, pedigree evaluation, progeny testing; measuring inbreeding, relationship. Prerequisite: Genetics 1. Mr. Chapman, Mr. Cole.

180. TOPICAL WORK. Yr; *cr. For those not prepared to elect Course 200. May be taken in connection with, or subsequent to, Genetics 1; consent of instructor required. Fee $2.25 per lab. cr. Staff.

200. RESEARCH. Yr; *cr. Animal genetics, Mr. Cole, Mr. Irwin, Mr. Chapman. Plant genetics, Mr. Brink, Mr. Rieman, Mr. Cooper, Mr. Smith. Physiology of reproduction, Mr. Casida. Fee $2.25 per lab. cr.

220. SEMINARY. Yr; 1 cr. Consent of instructor required before election. Mr. Cole.

(For courses in probability and statistics see Math. 118, 135 and 137.)

HORTICULTURE

PROFESSORS JOHNSON, MILWARD, MOORE, *chairman,* ROBERTS; ASSOCIATE PROFESSORS AUST, LONGENECKER, RIEMAN; ASSISTANT PROFESSOR KUEHNER; INSTRUCTORS COMBS, HOLMES, OGDEN.

The courses offered in horticulture permit the student to specialize in fruit growing, landscape design, or vegetable production. The choice of electives taken in other departments to supplement horticultural courses will be determined by the specialization and the particular phase of the work the student expects to enter. Courses 1, 3, 5, 6, 7, and 12 should be of particular interest to students specializing in other departments who are fitting themselves to be county agents, teachers in vocational or high schools, or farm managers or operators.

Majors in horticulture may count a maximum of five credits toward the major requirement by electing Economic Entomology 103 or 105 and Plant Pathology 7. Students majoring in Landscape are not required to count as credits in their major the following courses in the Department of Horticulture: Horticulture 1, 3, 5, and 103. Landscape majors may substitute Art Education 50 for Animal Husbandry 1 and Topographic Engineering 107 or 108 for Mathematics 71 in the freshman year. With the consent of the major adviser Agricultural Economics 117 may be substituted for Agricultural Economics 1. The attention of majors is called to courses in city planning offered by the College of Engineering.

1. PRINCIPLES OF FRUIT GROWING. I; 3 cr. Fruit growing and its application to our common tree fruits. Lab. fee $2.25. Mr. Moore.

3. VEGETABLE GARDENING II; 3 cr. The growing of vegetables out of doors. Practical work in the gardens. Lab. fee $4.50. Mr. Moore.

5. SMALL FRUIT CULTURE. I; 2 cr. Culture of cane, bush and other small fruits. Offered 1940-41 and in alternate years. Mr. Moore.

6. PRINCIPLES OF LANDSCAPE DESIGN. II; 3 cr. Landscape art; the study of landscape plants and the making of planting plans. An inspection trip is required. Offered 1941-42 and in alternate years. Lab. fee $2.25. Mr. Aust.

7. PLANT PROPAGATION. II; 2 cr. Principles and practices involved in propagating horticultural plants. Lab. fee $2.25. Mr. Moore.

8. HOME HORTICULTURE. II; 3 cr. Plants and flowers for home beautification; production of vegetables and small fruits for home use. Designed primarily for women. Offered in 1941-42 and in alternate years. Lab. fee $2.25. Mr. Moore.

12. ELEMENTARY HOME GROUNDS DESIGN. II; 3 cr. A continuation of Horticulture 6. An inspection trip is required. Prerequisite: Hort. 6 or consent of instructor. Lab. fee $2.25. Mr. Aust, Mr. Longenecker.

13. LAWNS. I; 2 cr. A study of ground forms, terracing, grading, seeding, estimating. Prerequisite: Consent of instructor. Offered 1940-41 and in alternate years. Lab. fee $2.25. Mr. Longenecker.

14. LANDSCAPE CONSTRUCTION PROBLEMS. Yr; 3 cr. Prerequisite: Hort. 6. Offered 1941-42 and in alternate years. Lab. fee $4.50. Mr. Longenecker.

100. THESIS. Yr; 2 cr. Fees depend upon character of thesis work. Lab. fee $2.25 per lab cr. Mr. Aust, Mr. Johnson, Mr. Moore, Mr. Roberts.

101. ADVANCED HOME GROUNDS DESIGN. I; 3 cr. Design of estate, country home grounds, and related problems. Prerequisites: Hort. 6 and 12. Lab. fee $4.50. Offered 1941-42 and in alternate years. Mr. Aust, Mr. Longenecker.

102. PUBLIC GROUNDS. II; 3 cr. Landscape problems in connection with public buildings; parks and cemetery design; roadside planting. Lab. fee $4.50. Prerequisites: Hort. 6 and 12. Offered 1941-42 and in alternate years. Mr. Aust.

103. CROP IDENTIFICATION AND STANDARDS. I; 2 cr. (Also listed as Agronomy 103). A laboratory study of the classification, identification and standards of excellence of field, orchard and garden crops. Lab. fee $2.25. Only one credit of this course may be counted toward a major in Horticulture. Mr. Moore, Mr. Holden.

104. LANDSCAPE PLANTS. Yr; 2 cr. I, A study of plant forms, color, and texture in landscape design. II, Advanced study of annuals and herbaceous perennials. Prerequisite: Hort. 6. Offered 1940-41 and in alternate years. Lab. fee $2.25. Mr. Longenecker.

110. SEMINARY. Yr; 1 cr. Prerequisite: Senior standing. Mr. Aust, Mr. Roberts.

122. ADVANCED POMOLOGY. Yr; 2 cr. Recent theory, and practice regarding problems of commercial orcharding. First semester problems relating to fruit; second semester problems of orchard practice. Prerequisite: Hort. 1 or consent of instructor. Lab. fee $2.25. Mr. Roberts.

180. HORTICULTURAL PROBLEMS. Yr; 1-3 cr. Assigned problems in the phase of horticulture in which the student is particularly interested: (a) fruit growing, Mr. Moore, Mr. Roberts; (b) gardening and floriculture, Mr. Moore; (c) landscape, Mr. Aust, Mr. Longenecker. Prerequisite: Consent of instructor. Fee $2.25 per lab. cr. Staff.

192. RURAL PLANNING. II; 3 cr. Principles of rural-regional planning applied to a county. Only 1 credit of this course may be counted toward a major in Horticulture. Prerequisite: Consent of instructor. Mr. Aust, Mr. Kolb, Mr. Wehrwein.

200. RESEARCH PROBLEMS. Yr; *cr. Fee $2.25 per lab. cr. Staff.

LIBRARY

ASSOCIATE PROFESSOR HEAN, *librarian.*

1. LIBRARY PRACTICE. I; 2 cr. Library classification and arrangement, bulletin filing, use of card catalogues, periodical indexes, abstract journals, public documents, standard reference works, and the compiling of bibliographies. Mr. Hean.

MATHEMATICS

These courses, offered in the College of Letters and Science, are especially designed for students in Agriculture. Students who wish preparation in mathematical statistics beyond Mathematics 135 should take the courses prerequisite to calculus followed by Math. 5a, 5b, 118, and 137. Mathematics 54 and 55 may be taken in place of Mathematics 5a and 5b.

71. MATHEMATICS FOR AGRICULTURAL STUDENTS. I; 4 cr. For students presenting one unit of algebra for entrance. Staff.

72. MATHEMATICS FOR AGRICULTURAL STUDENTS. I; 4 cr. For students presenting one and one-half units of algebra for entrance. Staff.

135. INTRODUCTION TO STATISTICAL METHODS IN THE NATURAL SCIENCES. I; 3 cr. For the student seeking experience in the calculation and interpretation of statistical measures and techniques suited to the analysis of small samples. Two lectures; 3 hrs. laboratory. Prerequisite: Math. 1b, 3a, or 72, and consent of instructor. Lab. fee $2.25. Mr. Eisenhart.

PLANT PATHOLOGY

PROFESSORS DICKSON, DUGGAR, GILBERT, KEITT, *chairman,* RIKER, VAUGHAN, WALKER; ASSOCIATE PROFESSOR RIEMAN; ASSISTANT PROFESSOR BRANN; LECTURER RICHARDS; INSTRUCTORS LARSON, WHIPPLE.

Courses 104, 220, 221, 249, and 252 are offered in the Department of Botany, College of Letters and Science, and do not count toward the 50 credits required in the College of Agriculture.

7. ELEMENTARY PLANT PATHOLOGY. I; 3 cr. The economic importance, appearance, cause, and means for controlling representative diseases of plants. Prerequisites: Botany 1 and Agr. Bact. 1. Lab. fee $4.50. Mr. Riker, Mr. Dickson, and staff.

100. THESIS. Yr; 2 cr. Investigation of some problem in plant pathology. Subject should be chosen early in order to take advantage of the summer season to secure material. Fee $2.25 per lab. cr. Staff.

101. DISEASES OF PLANTS. I; 3 cr. The nature, causes, and remedies of the diseases of economic plants, including field and laboratory studies of a typical series of examples. Prerequisite: Plant Pathology 7 or graduate standing. Lab. fee $4.50. Mr. Walker, Mr. Backus.

102. METHODS IN PLANT PATHOLOGY. I; 3 cr. Research procedures including: use of the literature, isolation and inoculation practices, special technique according to individual needs, and preparation of manuscripts. Prerequisite: Plant Path. 101. Lab. fee $4.50. Mr. Riker.

104. MORPHOLOGY OF FUNGI. I; 3 cr. Prerequisite: Botany 1. Lab. fee $3.50. Mr. Gilbert.

116. DISEASES OF FIELD CROPS. II; 2 cr. Arranged to meet the needs of students in plant pathology and agronomy. Prerequisites: Plant Path. 101 or 7 and 104. Offered 1941-42 and in alternate years. Lab. fee $2.25. Mr. Dickson.

117. DISEASES OF ORCHARD FRUITS. II; 2 cr. The more important diseases of deciduous orchard fruits. Prerequisites: Plant Path. 101 or 7 and 104. Offered 1941-42 and in alternate years. Lab. fee $2.25. Mr. Keitt.

119. Fungus Deterioration of Forest Products. I; 2 cr. A survey of the cause and prevention of stains and decay in forest products, and control measures. Prerequisites: Plant Path. 101 and Botany 220. Offered 1940-41 and in alternate years. Lab. fee $2.25. Miss Richards.

120. Diseases of Vegetable Crops. II; 2 cr. The more important field and storage diseases of vegetable crops. Prerequisites: Plant Path. 101 or 7 and 104. Offered 1940-41 and in alternate years. Lab. fee $2.25. Mr. Walker.

122. Fungicides in Relation to Host and Parasite. II; 1 cr. Advanced course intended primarily for students specializing in plant pathology, horticulture, and economic entomology. Prerequisites: Plant Path. 101 or 7 and 104. Offered 1940-41 and in alternate years. Mr. Keitt.

200. Research. Yr; *cr. Fee $2.25 per lab. cr. Staff.

220. Advanced Mycology. Yr; 2 cr. Prerequisites: Botany 104 and Plant Path. 101. Lab. fee $2.00. Mr. Gilbert.

221. Classification of Parasitic Fungi. Yr; *cr. Prerequisite: Botany 104 or Plant Path. 101. Mr. Backus, Mr. Green.

223. Seminary in Plant Pathology. Yr; 1 cr. Mr. Keitt and staff.

249. Special Physiology of Pathogenic Fungi. II; 2 cr. Prerequisite: Botany 146. Mr. Duggar.

252. Cytology of Fungi. II; 2 cr. Prerequisite: At least one semester of general cytology. Lab. fee $2.00 per cr. Mr. Gilbert.

POULTRY HUSBANDRY

Professors Halpin, *chairman*, Hayes; Assistant Professors Annin, Holmes.

Students majoring in poultry husbandry may prepare for commercial poultry farming, for one of the various lines of commercial work with which poultry husbandry is related, or for educational work in extension, instruction or research.

Students preparing for educational work along the more scientific lines should elect Chemistry 120, Biochem. 110, Zoology 105 and 109. Not to exceed five credits from the following courses may be counted as a portion of the major requirements in poultry husbandry: Veterinary Science 120, Animal Husbandry 126, Biochem. 110, Agricultural Economics 127, Agricultural Economics 128, Genetics 105.

1. Poultry Raising. I; 3 cr. A general survey course designed to give the student an understanding of the problems concerned in poultry raising. Lab. fee $2.25. Mr. Holmes.

8. Marketing Poultry Products. I; 3 cr. A study of the facts that tend to produce quality in market poultry and eggs. Methods of preparation and marketing poultry and eggs. Lab. fee $2.25. Mr. Annin.

100. Thesis. Yr; 2 cr. Fee $2.25 per lab. cr. Mr. Halpin, Mr. Holmes, Mr. Annin.

102. Poultry Feeds and Feeding. I; 3 cr. Poultry feeds and formulation of poultry rations with special reference to the mineral, protein and vitamin requirements. Prerequisite: Poultry Husbandry 1 or Animal Husbandry 126. Offered 1940-41 and in alternate years. Mr. Halpin.

105. Hatchery Management. II; 3 cr. Factors influencing fertility and hatchability of eggs. Practical chick embryology. Brooding requirements of baby chicks. Cost of production and methods of marketing. Prerequisite: Poultry Husbandry 1. Offered 1941-42 and in alternate years. Lab. fee $2.25. Mr. Holmes.

106. Poultry Judging. I; 3 cr. Origin, history, and points of excellence of the various breeds and varieties of poultry. Inheritance of common characters in poultry. Prerequisite: Poultry Husbandry 1 or Genetics 1. Offered 1941-42 and in alternate years. Lab. fee $2.25. Mr. Holmes.

107. Advanced Poultry Management. II; 3 cr. Influence of recent investigations in poultry husbandry as they affect modern methods of feeding, housing, breeding, care and management of poultry. Prerequisite: Poultry Husbandry 1. Offered 1940-41 and in alternate years. Mr. Halpin.

180. Special Problems. Yr; *cr. Fee $2.25 per lab. cr. Mr. Halpin, Mr. Holmes, Mr. Annin.

200. Research Problems. Yr; *cr. Fee $2.25 per lab. cr. Mr. Halpin, Mr. Holmes, Mr. Annin.

RURAL SOCIOLOGY

Professor Kolb, *chairman*; Associate Professors Barton, Wileden; Assistant Professor Hill; Instructors Andersen, Kellogg.

There are two ways in which students may work in this field. First, a program leading to a full major and preparing for teaching, research, or extension work may be arranged. In such a plan 10 credits should be taken in the department and 5 credits selected in any one of the following departments: Agricultural Economics, Agricultural Education, Agricultural Journalism, Horticulture, Home Economics, or Sociology in the College of Letters and Science. Credits thus chosen in Letters and Science may count toward the major, but shall not be counted as a portion of the 50 credits required in agricultural subjects. Second, courses may be selected as electives by students majoring in other departments, who wish to gain a knowledge of the social arrangements of present-day rural society.

25. Rural Life. I; 3 cr. Rural society; its groups as families, neighborhoods, villages, interest groups, town-country and rural-urban relations; its people; its social institutions. Prerequisite: Sophomore standing. Mr. Kolb.

125. Rural Social Trends. I; 2 cr. Advanced course in study of rural society through systematic examination of important source materials from Europe and America; recent findings in rural social trends. Prerequisite: Rural Sociology 25 or equivalent or senior standing. Mr. Barton.

126. Rural Standards of Living. II; 2 cr. Main elements composing standards of living, growth of a consumer consciousness, and governmental and cooperative agencies which give it expression. Prerequisite: Sociology 1, 2, 25 or equivalent. Mr. Barton.

127. Rural Community Organization. II; 2 cr. History of the rural community and its social organization; principles, including leadership and processes of cooperation and conflict; agencies; studies of selected cases. Prerequisite: Rural Sociology 25 or graduate standing. Mr. Wileden.

192. Rural Planning. II; 3 cr. Principles of rural-regional planning applied to a county. Only one credit of this course may be counted toward a major in Rural Sociology. Prerequisite: Consent of instructors. Mr. Kolb, Mr. Aust, Mr. Wehrwein.

200. Research and Thesis. Yr; *cr. Prerequisite: Advanced graduate standing. Staff.

225. Seminary in Rural Social Research. Yr; 2 cr. Scope and method in current research: community organization, standards of living, population, farmers' organizations, social institutions, rural government. Prerequisites: Graduate standing and consent of instructor. Mr. Kolb.

SOILS

Professors Chapman, Graul, Truog, *chairman*, Whitson; Associate Professors Wilde, Zeasman; Assistant Professor Albert; Instructors Hull, Muckenhirn.

The various courses in soils are designed to give training for either the more practical field such as farming and farm advisory and managerial work, or the professional

field such as teaching, research, extension, soil survey, and soil conservation. Students preparing for the practical field should elect the less technical courses in soils and related agricultural departments; those preparing for professional work should elect considerable course work in the basic natural sciences along with the advanced courses in soils.

Not to exceed 5 credits from the following courses may be counted as a portion of the undergraduate major requirement in Soils: Agr. Bact. 123, 3 cr.; Geology 1, 5 cr.; Agronomy 102, 2 cr.; Agronomy 106, 3 cr.

1. SOILS AND SOIL FERTILITY. I; 4 cr. An introductory, general survey of the field. Prerequisite: Chemistry 1a. Lab. fee $4.50. Mr. Graul, Mr. Muckenhirn.

26. FERTILIZERS AND SOIL MANAGEMENT. II; 2 cr. Use, composition, and manufacture of fertilizers. Prerequisite: Soils 1. Mr. Graul.

100. THESIS. Yr; 2 cr. Fee $2.25 per lab. cr. Staff.

106. SOIL EROSION. I; 4 cr. Causes, and control by means of soil management and engineering practices. Only two credits of this course may be applied toward a major in soils. Prerequisites: Soils 1, and a course in topography. Lab. fee $4.50. Mr. Whitson, Mr. Zeasman.

121. SOIL ANALYSIS. II; 4 cr. Methods for determining soil reaction and available and total constituents. Prerequisites: Soils 1, Chemistry 12, or consent of instructor. Lab. fee $4.50. Mr. Truog.

122. SOIL PHYSICS. II; 3 cr. Physical properties, moisture relations, and methods of physical analysis of soils. Prerequisites: Soils 1 and Chemistry 12 or course in physics. Fee $2.25 per lab. cr. Mr. Muckenhirn.

123. FOREST SOILS. II; 3 cr. Properties and management in relation to silviculture and nursery practice. Prerequisites: Soils 1, Chemistry 1, Botany 1, or graduate standing. Mr. Wilde.

125. SOIL AND LAND CLASSIFICATION; AGRICULTURAL CLIMATOLOGY. II; 3 cr. Principles of climatology, soil origin and land classification in relation to agriculture. Prerequisite: Soils 1 or consent of instructor. Mr. Whitson.

127. SOIL SCIENCE AND PLANT NUTRITION. I; 2 cr. The constitution of the soil and how it functions as a medium for plant growth. Prerequisite: Soils 1 or graduate standing. Mr. Truog.

128. SEMINARY IN SOILS. I; 1 cr. Mr. Truog. II; 2 cr. Mr. Whitson. Prerequisite: Senior standing or consent of instructor.

180. TOPICAL AND FIELD WORK. I, II; *cr. Staff.

200. RESEARCH. I, II; *cr. Fee $2.25 per lab. cr. Staff.

VETERINARY SCIENCE

PROFESSORS BEACH, *chairman*, HADLEY, WISNICKY; ASSOCIATE PROFESSOR HERRICK; INSTRUCTORS FERGUSON, POUNDEN.

The subjects described below are designed to afford the student an opportunity to learn those facts relative to the prevention and control of animal diseases that a livestock man should know, and to give students an appreciation of the various branches of Veterinary Science.

Some of the courses numbered above 100 are comparable with courses offered in a regular veterinary curriculum; others are especially suited to the needs of advanced students in the College of Agriculture and to those who contemplate qualifying for the combined degrees of Bachelor of Science and Doctor of Veterinary Medicine.

1. THE ANIMAL BODY. I; 3 cr. The structure, functions, and derived products of the animal body. The student learns about the form, capacity, and productivity of farm animals. Prerequisite: Sophomore standing. Lab. fee $4.50. Mr. Hadley.

28. PRINCIPLES OF VETERINARY SCIENCE. I; 2 cr. Nature and causes of diseases of farm animals. Prerequisite: Sophomore standing. Offered in 1940-41 and in alternate years. Mr. Hadley.

29. ANIMAL DISEASE PREVENTION. II; 3 cr. Prevention and control of diseases of livestock and poultry. Mr. Beach.

100. THESIS. Yr; 2 cr. Fee $2.25 per lab. cr. Mr. Hadley, Mr. Beach, Mr. Herrick.

120. PARASITES OF DOMESTIC ANIMALS. I; 3 cr. Structure, life history, diagnosis and prevention of parasites of the lower animals. Prerequisite: Zoology 1 or Vet. Science 1. Lab. fee $5.00. Mr. Herrick.

126. INFECTION AND IMMUNITY. II; 3 cr. An experimental study of the principles of infection and immunity. Prerequisite: A course in bacteriology. Offered in 1940-41 and in alternate years. Lab. fee $4.50. Mr. Hadley, Mr. Ferguson.

127. FUR FARMING. II (last half of semester); 2 cr. Theory and practice of propagating fur bearing animals. Emphasis will be placed on methods followed by successful fur farmers. Mr. Wisnicky.

180. TOPICAL WORK. Yr; *cr. Assigned work for advanced students. Prerequisite: Consent of instructor. Mr. Hadley and staff.

200. RESEARCH. Yr; 2 cr. Fee $2.25 per lab. cr. Mr. Beach, Mr. Hadley, Mr. Herrick, Mr. Wisnicky.

WILDLIFE MANAGEMENT

PROFESSOR LEOPOLD, *chairman.*

The courses in wildlife management are of two kinds: those intended to give the general student an understanding of wildlife as a natural resource, and those intended to train specialized students for professional practice.

Course 118 is for the general student. Familiarity with common wild plants and animals and with farming practice is desirable as a basis for this course.

Courses 161 and 200 are intended for professional students only, but Course 161 is open to others who show special qualifications and need. A bi-weekly non-credit seminar is held for students enrolled in Courses 161 and 200.

Professional training in wildlife management covers the animal conservation field and requires from two to five years of graduate work. The number of professional students accepted as candidates for an advanced degree in wildlife management is limited to five at one time, and these are recruited by selection. To be selected, a student should (1) have a bachelor's degree; (2) be proficient n field of ornithology,, field mammalogy, and field botany; (3) be skillful in reading evidence in the field; (4) be able to express himself clearly in writing; and (5) be familiar with land industries.

Students desiring to prepare themselves for professional training should major as undergraduates in some biological field, such as botany, zoology, agronomy, or soils.

Information on assistantships and fellowships available for those planning to take professional training in wildlife management may be obtained by writing to the Chairman of the Department of Wildlife Management.

118. WILDLIFE ECOLOGY. II; 3 cr. Structure and properties of the animal community, its relation to plants, soils, and land use. Field techniques; review of problems; history and economics of wildlife. Prerequisite: Junior standing or consent of instructor. Mr. Leopold.

161. WILDLIFE MANAGEMENT TECHNIQUES. Yr; *cr. Preparation of collections; analysis of stomachs and pellets; sex and age determinations; censuses; trapping and banding; planting food and cover; analysis of data; carding literature. Prerequisites: Wildlife Management 118 or equivalent, and consent of instructor. Mr. Leopold.

200. RESEARCH. Yr; *cr. Problems for professional students qualifying for advanced degrees in wildlife management. Mr. Leopold.

APPENDIX

SECTION I—MAJORS IN AGRICULTURAL SCIENCE

Many of the Wisconsin College of Agriculture students in the past have entered some phase of agricultural science and it seems probable that this field will continue to provide many opportunities. In this field high scholarship is a necessity; only those students whose work in the first two years is of high quality should plan to enter the field. The Graduate School at Wisconsin requires for entrance an average undergraduate record of 1.5 grade-points per credit.

Students wishing to prepare themselves in Agricultural Science find it necessary to follow their undergraduate work with further training along some particular line leading to the master or doctor of philosophy degree. For such students it is usually desirable to carry a broad general course as an undergraduate. The three general fields of particular importance are Animal Science, Plant Science, and Social Science.

All of the general college requirements, including the required courses of the freshman and sophomore years, must be met by students majoring in any of these fields. The majors outlined below follow the regulations with respect to a split major.

These majors have been approved by the Executive Committee and no special action is necessary by the student or adviser other than a statement by the student of his intention to follow one of these majors.

1—ANIMAL SCIENCE MAJOR

Students carrying this undergraduate major may later wish to carry graduate work in some of the following departments: Agricultural Bacteriology, Animal Husbandry, Biochemistry, Dairy Husbandry, Dairy Industry, Economic Entomology, Genetics, Poultry Husbandry and Veterinary Science. The major requirements will be absolved by carrying not less than 25 credits selected from the following list of courses:

		Credits
Agr. Bact.	121—Dairy bacteriology	3
Agr. Bact.	125—Food bacteriology	3
Agr. Bact.	126—Physiology of bacteria	3
Agr. Bact.	130—Determinative bacteriology	2-3
Animal Husb.	126—Livestock feeding	4
Biochem.	110—Principles of biochemistry	4
Biochem.	121—Dairy chemistry	3
Biochem.	125—Animal metabolism and vitamins	4
Dairy Ind.	124—Physical chemistry of dairy products	3
Econ. Ent.	102—Morphology and taxonomy	3
Econ. Ent.	120—Ecology	3
Genetics	1—Principles of breeding	4
Genetics	105—Animal genetics	3
Poultry Husb.	107—Advanced poultry management	3
Vet. Science	120—Parasites of domestic animals	3
Vet. Science	126—Infection and immunity	3
Thesis		4
		55-56

Students in this major must also carry at least 24 elective credits outside of the College of Agriculture. Basic science is recommended. It will also be desirable for students in this major to carry two years of at least one foreign language.

2—PLANT SCIENCE MAJOR

Students carrying this undergraduate major may later wish to carry graduate work in some one of the following departments: Agricultural Bacteriology, Agronomy, Biochemistry, Economic Entomology, Genetics, Horticulture, Plant Pathology, or Soils. The major requirements will be absolved by carrying not less than 25 credits selected from the following list:

		Credits
Agr. Bact.	123—Soil bacteriology	3
Agr. Bact.	126—Physiology of bacteria	3
Biochemistry	120—Plant biochemistry	2-5
Biochemistry	110—Principles of biochemistry	5
Agronomy	102—Pastures and pasture problems	2
Agronomy	130—Improvement of agronomic plants	3
Econ. Ent.	102—Insect morphology and taxonomy	3
Econ. Ent.	120—Ecology	3
Genetics	1—Principles of breeding	4
Genetics	104—Plant genetics	3
Horticulture	7—Plant propagation	2
Horticulture	122—Advanced pomology	2
Plant Path.	7—Elementary plant pathology	3
Plant Path.	101—Diseases of plants	3
Soils	26—Fertilizers and soil management	2
Soils	125—Soil and land classification	3
Soils	127—Soil science and plant nutrition	2
Thesis		4
		52-55

Students in ths major must also carry at least 24 elective credits outside of the College of Agriculture. Basic science is recommended. It will also be desirable for students in this major to carry two years of at least one foreign language.

3—SOCIAL SCIENCE MAJOR

Students carrying this undergraduate major may later wish to carry graduate work in some one of the following departments: Agricultural Economics, Agricultural Education, Agricultural Journalism, or Rural Sociology. The major requirements will be absolved by carrying not less than 25 credits selected from the following list:

		Credits
Agr. Econ.	10—Farm organization and management	3
Agr. Econ.	14—Farm business and legal practice	3
Agr. Econ.	117—Outlines of land economics	3
Agr. Econ.	126—International trade in agr. prod.	3
Agr. Econ.	127—Cooperation	3
Agr. Econ.	128—Marketing agr. products	3
Agr. Econ.	152—Farmer movements	3
Agr. Econ.	155—Prices of agricultural products	3
Agr. Educ.	5—Junior extension	2
Agr. Educ.	103—Seminar	2
Agr. Journ.	1—Writing farm news	3
Agr. Journ.	3—Agricultural advertising	3
Agr. Journ.	103—Extension media and methods	2
Rural Soc.	25—Rural life	3
Rural Soc.	125—Rural social trends	2
Rural Soc.	126—Rural standards of living	2
Rural Soc.	192—Rural regional planning	3
Thesis		4
		50

Students in this major must also choose at least 24 elective credits outside of the College of Agriculture. It is suggested that these 24 credits be selected from the courses in the following group. Two full years of at least one foreign language is also desirable.

		Credits
Economics	19—Economic history of the U. S.	3
Economics	105—Money and banking	3
Economics	124—Taxation	3
Economics	*130—Statistical methods	3
Economics	142—Public utilities	3
Economics	173—The economics of consumption	3
Geography	106—Agricultural geography	3
Journalism	2—Newspaper reporting and correspondence	3
Journalism	3—Editing	3
Journalism	7—The community newspaper	3
Pol. Sci.	7—American govt. and politics (Nat'l)	3
Sociology	1—Introductory sociology	3
Sociology	46—Social anthropology	3
Sociology	*132—Introductory social statistics	3
Sociology	139—Social psychology	3
Sociology	140—Principles of sociology	3
Sociology	197—Personality and social adjustment	3
Speech	8—Extempore speaking	2
		53

*The two statistical courses are to be considered as parallel; only one to be chosen.

SPLIT MAJORS

For many years, a large number of graduates of the Agricultural College have entered various industries related to agriculture, and the opportunities in this field seem to be increasing. Positions in rural banks, in the management of cooperative organizations and other agricultural enterprises closely related to agriculture, offer further opportunities for the agricultural college graduate with the proper training. Some of the more important fields are:

1—The Canning Industry
2—The Meat and Poultry Products Industries
3—The Dairy Manufacturing Industry
4—The Livestock Feed Industry
5—The Agricultural Equipment Industry
6—The Fertilizer Industry
7—The Seed Industry
8—The Grain Marketing and Processing Industries

Other fields that are of interest to some students are:

1—Food Technology
2—Soil Conservation

During the freshman and sophomore years, the student carries the subjects of the agricultural curriculum as outlined on pages 195-196. It will be desirable for the students to secure Mathematics 7, Economics 1b, and a course in speech during the sophomore year. Each of the majors as described below carries certain recommendations regarding sophomore options, and the description of the major should be consulted before making out the program of the sophmore year.

In the junior and senior years the student will carry 16 to 18 credits each semester. He will satisfy the requirements of the split major as described below. In addition he must select at least 24 credits outside of the College of Agriculture. Suggested courses are listed under the Commerce section on page 221.

The major for each industry consists of two parts, a COMMERCE SECTION and an INDUSTRIAL SECTION. The commerce section is common to each of the industrial majors. The industrial section is dependent upon the field of interest.

AGRICULTURAL INDUSTRY AND COMMERCE SPLIT MAJORS

COMMERCE SECTION

In each of the eight Industrial Majors a minimum of 5 credits must be selected from the following list of courses in Agricultural Economics and Agricultural Journalism:

		Credits
Agr. Econ.	10—Farm organization and management	3
Agr. Econ.	14—Farm business and legal practice	3
Agr. Econ.	126—International trade in agricultural products	3
Agr. Econ.	127—Cooperation	3
Agr. Econ.	128—Marketing of agricultural products	3
Agr. Econ.	155—Prices of agricultural products	3
Agr. Journ.	1—Writing farm news	3
Agr. Journ.	3—Agricultural advertising	3
Agr. Journ.	103—Extension media and methods	2

ELECTIVES OUTSIDE THE COLLEGE OF AGRICULTURE

The College of Agriculture curriculum prescribes that each student must select at least 24 credits of non-required courses outside of the College of Agriculture. For students interested in industrial work it is suggested, but not required, that these 24 credits elected from the following group. More than 24 credits may be taken profitably.

		Credits
Commerce	6—English in business	3
Commerce	8—Elements of accounting	3
Commerce	13—Marketing methods	3
Commerce	15—Principles of advertising	2
Commerce	31—Business statistics	3
Commerce	43—Business ethics	2
Commerce	105—Money and banking	3
Commerce	109—Legal aspects of business relations	3
Commerce	114—Marketing management	2
Economics	19—Economic history of the United States	3
Economics	146—Government and business	3
Economics	171—Personnel management	3
Geography	106—Agricultural geography	3

INDUSTRIAL SECTION

Before the second semester of the sophomore year the student will consult the assistant dean for assignment to an adviser, under whose direction a group of properly related courses will be selected, pertaining to the particular field in which he is interested.

The Executive Committee has approved the following list of groups of studies to meet the requirements of a split major, and no special action is necessary by the student or adviser other than a statement by the student of his intention to follow one of these majors. Other groups may be selected for a split major to meet a specific need. *If another grouping is selected it must be approved by the Executive Committee not later than the middle of the junior year.*

The student should recognize that the requirements of the split major represent the minimum for graduation. In order to prepare himself properly for the work in the particular industry selected, the student should carry considerably more than the minimum, both in the commercial courses and in the technical courses.

The student will select a minimum of 20 credits from *one* of the eight following Industrial majors, and 5 credits from the Commerce Section on page 221.

1. THE CANNING INDUSTRY

For a major in the Canning Industry a minimum of 20 credits must be selected from this list and in addition 5 credits must be selected from the Commerce Section on page 221.

		Credits
Agr. Bact.	125—Food bacteriology	3
Agr. Engr.	5—Power and machinery	5
Agronomy	103—Crop identification and standards	2
Agronomy	120—Seed and weed control	3
Agronomy	130—The improvement of agronomic plants	3
Biochemistry	1—Elementary biochemistry	4
Biochemistry	110—Principles of biochemistry	3-5
Dairy Ind.	108—Dairy mechanics	3
Dairy Ind.	124—Physical chemistry of dairy products	3
Econ. Ent.	105—Field crop and garden insects	2
Horticulture	3—Vegetable gardening	3
Horticulture	103—Crop identification and standards	2
Plant Path.	7—Elementary plant pathology	3
Plant. Path.	101—Diseases of plants	3
Plant Path.	120—Diseases of vegetable crops	2
Soils	26—Fertilizers and soil management	2

In the sophomore year Soils 1, Economic Entomology 1, and Horticulture 1 should be selected.

2. THE MEAT AND POULTRY PRODUCTS INDUSTRIES

For a major in the Meat and Poultry Products Industries a minimum of 20 credits must be selected from this list and in addition 5 credits must be selected from the Commerce Section on page 221.

		Credits
Animal Husb.	3—Types and breeds of livestock	2
Animal Husb.	5—Meat production and carcass values	2
Animal Husb.	126—Livestock feeding	4
Animal Husb.	130—Sheep and swine production	3
Animal Husb.	131—Horse and beef cattle production	2
Animal Husb.	133—Dairy cattle and milk production	3
Animal Husb.	135—Seminary	1
Agr. Bact.	121—Dairy bacteriology	3
Agr. Bact.	125—Food bacteriology	3
Poultry Husb.	1—Poultry raising	3
Poultry Husb.	8—Marketing poultry products	3
Poultry Husb.	102—Poultry feeds and feeding	3
Poultry Husb.	105—Hatchery management	3
Poultry Husb.	106—Poultry judging	3
Poultry Husb.	107—Advanced poultry management	3
Vet. Science	28—Principles of veterinary science	2
Vet. Science	29—Animal disease prevention	3

In the sophomore year Biochemistry 1, Veterinary Science 1, and Dairy Husbandry 1 should be selected.

3. THE DAIRY MANUFACTURING INDUSTRY

For a major in the Dairy Manufacturing Industry a minimum of 20 credits must be selected from this list and in addition 5 credits must be selected from the Commerce Section on page 221.

		Credits
Dairy Ind.	103—Creamery operation and management	3
Dairy Ind.	104—Cheese	4
Dairy Ind.	105—Market milk	3
Dairy Ind.	106—Ice cream and condensed milk products	3
Dairy Ind.	108—Dairy mechanics	3
Dairy Ind.	123—Seminary	2
Dairy Ind.	180—Advanced dairy manufacturing problems	1-3
Agr. Bact.	121—Dairy bacteriology	3
Agr. Bact.	125—Food bacteriology	3
Agr. Bact.	130—Determinative bacteriology	2-3
Animal Husb.	5—Meat production and carcass values	2
Poultry Husb.	8—Marketing poultry products	3
Drawing	1—Elements of drawing	3

In the sophomore year Biochemistry 1, Dairy Industry 1, and Agricultural Engineering 5 should be selected.

4. THE LIVESTOCK FEED INDUSTRY

For a major in the Livestock Feed Industry a minimum of 20 credits must be selected from this list and in addition 5 credits must be selected from the Commerce Section on page 221.

		Credits
Animal Husb.	2—History of breeds	2
Animal Husb.	3—Livestock production	2
Animal Husb.	5—Meat production and carcass values	2
Animal Husb.	130—Sheep and swine production	3
Animal Husb.	131—Horse and beef cattle production	2
Animal and Dairy Husb.	126—Livestock feeding	4
Animal and Dairy Husb.	134—Livestock breeding	3
Animal and Dairy Husb.	135—Seminary	1
Dairy Husb.	133—Dairy cattle and milk production	3
Poultry Husb.	1—Poultry raising	3
Poultry Husb.	107—Advanced poultry management	3
Vet. Science	28—Principles of veterinary science	2
Vet. Science	29—Animal disease prevention	3
Soils	1—Soils and soil fertility	4
Agr. Econ.	106—Crop and livestock estimating	3
Agronomy	102—Pastures and pasture problems	2
Agronomy	106—Forage problems	3

In the sophomore year Biochemistry 1, Poultry 1, and Dairy Industry 1 should be selected.

5. THE AGRICULTURAL EQUIPMENT INDUSTRY

For a major in the Agricultural Equipment Industry a minimum of 20 credits must be selected from this list and in addition 5 credits must be selected from the Commerce Section on page 221.

		Credits
Agr. Engr.	1—Surveys and structures	4
Agr. Engr.	5—Power and machinery	5
Agr. Engr.	9—Farm mechanics	3
Agr. Engr.	100—Thesis	4
Agr. Engr.	105—Farm tractors and tractor machinery	4
Agr. Engr.	121—Seminary	1
Agronomy	104—Grain crops	3
Agronomy	120—Seed and weed control	3
Animal and Dairy Husb.	126—Livestock feeding	4
Chemical Engr.	8—Metallography	2
Dairy Industry	108—Dairy mechanics	3

		Credits
Econ. Ent.	1—Elementary entomology	3
Physics	61—General physics	5
Plant Path.	7—Elementary plant pathology	3
Plant Path.	101—Diseases of plants	3
Poultry	107—Advanced poultry management	3
Soils	26 -Fertilizers and soil management	2

In the sophomore year Poultry 1, Dairy 1, and Soils 1 should be selected.

6. THE FERTILIZER INDUSTRY

For a major in the Livestock Feed Industry a minimum of 20 credits must be selected from this list and in addition 5 credits must be selected from the Commerce Section on page 221.

		Credits
Agronomy	102—Pastures and pasture problems	2
Agronomy	106—Forage problems	3
Agr. Bact.	123 -Soil bacteriology	3
Biochemistry	120—Plant biochemistry	5
Botany	146—Plant physiology	4
Chemistry	20-21—Organic chemistry	4
Chemistry	148—Introduction to physical and colloidal chemistry	3-5
Plant Path.	7—Elementary plant pathology	3
Plant Path.	101—Diseases of plants	3
Soils	26 -Fertilizers and soil management	2
Soils	121—Soil analysis	4
Soils	127 -Soil science and plant nutrition	2
Soils	128—Soil seminary	1

In the sophomore year Soils 1, Horticulture 1, and Agricultural Engineering 5 should be selected.

7. THE SEED INDUSTRY

For a major in the Seed Industry a minimum of 20 credits must be selected from this list and in addition 5 credits must be selected from the Commerce Section on page 221.

		Credits
Agronomy	102—Pastures and pasture problems	2
Agronomy	103—Crop identification and standards	2
Agronomy	104—Grain crops	3
Agronomy	106—Forage crops	3
Agronomy	120—Seed and weed control	3
Agronomy	130—Improvement of agronomic plants	3
Plant Path.	7 -Elementary plant pathology	3
Plant Path.	101—Diseases of plants	3
Plant Path.	116—Diseases of field crops	2
Plant Path.	120—Diseases of vegetable crops	2
Genetics	1—Principles of breeding	4
Genetics	104—Plant genetics	3
Soils	26 -Fertilizers and soil management	2
Soils	125—Soil and land classification	3
Botany	129 -Classification of cultivated plants	3
Botany	146—Plant physiology	4
Econ. Ent.	1—Elementary entomology	3
Econ. Ent.	105 -Field crop and garden insects	2
Horticulture	6—Landscape gardening	3
Horticulture	7—Plant propagation	2

In the sophomore year Soils 1, Economic Entomology 1, and Horticulture 3 should be selected.

8. THE GRAIN MARKETING AND PROCESSING INDUSTRIES

For a major in the Grain Marketing and Processing Industries, a minimum of 20 credits must be selected from this list and in addition 5 credits must be selected from the Commerce Section on page 221.

		Credits
Agronomy	103—Crop identification and standards	2
Agronomy	104—Cereal crops	3
Agronomy	120—Seed and weed control	3
Agronomy	130—Improvement of agronomic plants	3
Chemistry	12—Quantitative analysis	3
Chemistry	20-21—Organic chemistry	5
Chemistry	148—Introduction to physical and colloidal chemistry	5
Biochemistry	110—Principles of biochemistry	5
Botany	129—Classification of cultivated plants	3
Botany	146—Plant physiology	4
Plant Path.	7—Elementary plant pathology	3
Plant Path.	101—Diseases of plants	3
Plant Path.	116—Diseases of field crops	2
Agr. Bact.	125—Food bacteriology	3
Agr. Bact.	126—Physiology of bacteria	3
Genetics	1—Principles of breeding	3
Agr. Econ.	106—Crop and livestock estimating	3

In the sophomore year Biochemistry 1, Agricultural Engineering 5, Economic Entomology 1, or Horticulture 1, should be selected.

OTHER SPLIT MAJORS

1. FOOD TECHNOLOGY

There is an increasing demand in the food industries and related fields for workers especially trained to work in the laboratories and in the plants. The major in Food Technology should aid the student in obtaining a position and should help in his advancement. The major also may serve as a general preparation for specialized graduate work in some phase of food technology.

A minimum of 25 credits must be chosen from this group for a split major:

		Credits
Agr. Bact.	121—Dairy bacteriology	3
Agr. Bact.	125—Food bacteriology	3
Agr. Bact.	126—Physiology of bacteria	3
Agr. Bact.	130—Determinative bacteriology	2-3
Agr. Econ.	128—Marketing agricultural products	3
Agronomy or Hort.	103—Crop identification and standards	2
Animal Husb.	5—Meat production and carcass values	2
Biochemistry	110—Principles of biochemistry	3-5
Biochemistry	121—Dairy chemistry	2-5
Biochemistry	126—Animal nutrition	2
Chem. Engr.	15—Industrial chemistry	2
Chemistry	146-147—Food chemistry	4
Dairy Ind.	108—Dairy mechanics	3
Dairy Ind.	124—Physical chemistry of dairy products	3
Poultry Husb.	8—Marketing poultry products	3

In the sophomore year Biochemistry 1 or 3, Dairy Industry 1, and Agricultural Engineering 5 should be selected. Both Botany 1 and Zoology 1 should be taken.

Recommended as electives to supplement the split major are the following courses:

		Credits
Agr. Econ.	126—International trade in agricultural products	3
Agr. Econ.	155—Prices of agricultural products	3
Agr. Engr.	9—Farm mechanics	3
Agr. Journ.	3—Agricultural advertising	3
Agr. Journ	103—Extension media and methods	2
Biochemistry	125—Animal metabolism and vitamins	2-4
Biochemistry	127—Fermentation biochemistry	2-4
Botany	104—Morphology of fungi	3
Botany	111—Microscopical examination of drugs and foods	3
Chemistry	113—Water analysis	1
Commerce	6—English in business	3
Drawing	1—Elements of drawing	3
Mathematics	135—Statistical methods in science	3
Physics	61—General physics	5

2. SOIL CONSERVATION

Students desiring to prepare for work in Soil Conservation should select either the engineering or the soils-crops aspect of the subject. Those selecting the engineering aspect should choose the Civil Engineering curriculum outlined by the Department of Agricultural Engineering. Those selecting the soils-crops aspect of conservation should choose as adviser a representative of the Department of Soils or Agronomy not later than the beginning of the junior year and they must also secure practical farm experience.

During the freshman and sophomore years the student carries the subjects of the Agricultural curriculum as outlined on pages 195 and 196.

In the sophomore year Soils 1, Agricultural Engineering 1, and Economic Entomology 1 should be selected. In the junior and senior years the student will carry 16 to 18 credits each semester. He will satisfy the requirements of a major in the soils-crops aspect of soil conservation by selecting at least 25 credits from the following subjects. (Courses preceded by an asterisk [*] should be taken in the junior year):

		Credits
Agr. Econ.	117—Outlines of land economics	3
Agr. Engr.	5—Power and machinery	5
Agr. Engr.	101—Drainage design	2
*Agronomy	102—Pastures and pasture problems	2
*Agronomy	106—Forage problems	3
Botany	129—Classification of cultivated plants	2 or 3
*Geology	1—General geology	5
Geology	136—Principles of erosion	2
Hydraulics	110—Hydrology	2
*Soils and Agr. Engr.	106—Soil erosion	4
Soils	26—Fertilizers and soil management	2
Soils	122—Soil physics	3
Soils	125—Soil and land classification; Agricultural climatology	3
Topographic Engr.	108—Short course in surveying	3

The College of Agriculture curriculum requires that the student must select at least 24 credits of non-required courses outside of the College of Agriculture. It is recommended that the following courses be included in this requirement: Botany 164, 3 cr.; Geography 128, 3 cr.; Geography 140, 3 cr.; Geology 133, 5 cr.; and Geology 136, 2 cr.

Following is a list of other helpful courses which should be given preference in completing the required amount of work for graduation: Agricultural Economics 10, 3 cr.; Agricultural Economics 14, 3 cr.; Agronomy 120, 3 cr.; Animal Husbandry

126, 4 cr.; Agricultural Bacteriology 123, 3 cr.; Forest Products 1, 2 cr.; Horticulture 7, 2 cr.; Soils 123, 3 cr.; and Soils 127, 2 cr.

SECTION II—ADVANCED INDEPENDENT WORK

A student who has taken his freshman and sophomore work at the University of Wisconsin, whose grade-point average for these first two years of work is 2.6 or higher, and who is recommended by three of his sophomore instructors, may be permitted by the major division or department of his choice to pursue Advanced Independent Work during the remainder of his course.

At the inception of this Advanced Independent Work, the major division or department shall outline for the student a five-semester plan of study, a whole or part of which is to be pursued independently of course and classroom requirements, and which shall include a thesis. Upon recommendation of the division or department and upon approval by the Graduate Office of work done on the thesis, such a student may be admitted to the Graduate School at the end of the seventh semester, thereby becoming subject to its regulations and eligible to its scholarships. The student who, at the close of the eighth semester, has met the general requirements outside the major, has passed a comprehensive examination set by the division or department and covering his last four semesters of work within the major, and is recommended by his division or department and by the College of Agriculture, shall be granted the bachelor degree. If the program is followed during the next semester, the student who has passed a comprehensive examination set by the division or department covering his work within the major, has had his completed thesis approved by a committee of three appointed by the Graduate Office, and is recommended by his division or department and by the Graduate School, shall be granted the master degree at the end of the ninth semester.

HOME ECONOMICS

FRANCES ZUILL, DIRECTOR

FACULTY

ABRY, CECELIA FRANCES, *M.S.*, Assistant Professor of Home Economics
ALLEN, HELEN LOUISE, *M.A.*, Assistant Professor of Home Economics
COWLES, MAY LOUISE, *Ph.D.*, Associate Professor of Home Economics
EVERSON, GLADYS JUNE, *M.S.*, Instructor in Home Economics
HAAN, IRENE MARGARET, *M.S.*, Instructor in Home Economics
HAMANN, ILSE HEDWIG, *M.A.*, Assistant Professor of Home Economics
HENDERSON, RUTH ADELE, *M.A.*, Assistant Professor in the Teaching of Home Economics
HILL, MRS. JULIA LOWTH, *M.S.*, Instructor in Home Economics
HUSSEMANN, DOROTHY LILLIAN, *M.S.*, Instructor in Home Economics
JONES, MRS. NELLIE KEDZIE, *M.S.*, *LL.D.*, Emeritus Professor of Home Economics
JUAIRE, MARION ABBIE, *M.S.*, Associate Professor of Home Economics
KLEINSORGE, HARRIET BAZLEY, *B.S.*, Instructor in Home Economics
LEINDORF, MRS. AGNES, *M.S.*, Instructor in Home Economics
MANNING, HAZEL, *M.S.*, Professor of Home Economics
MARLATT, ABBY LILLIAN, *M.S.*, *Sc.D.*, *LL.D.*, Emeritus Professor of Home Economics
MAYER, JULIETTE, *M.S.*, Instructor in Home Economics
MENDENHALL, MRS. DOROTHY REED, *B.A.*, *M.D.*, *Sc.D.*, Lecturer in Home Economics
MORTIMER, MRS. IVA R., *M.A.*, Instructor in Home Economics
NEWSOM, SHIRLEY ELEANOR, *M.S.*, Instructor in Home Economics
PARSONS, HELEN TRACY, *Ph.D.*, Professor of Home Economics
PATTON, STELLA TROUT, *M.S.*, Assistant Professor of Home Economics
PERSONIUS, CATHERINE, *Ph.D.*, Associate Professor of Home Economics
POLLOCK, JOSEPHINE, *B.S.*, *M.A.*, Assistant State Home Demonstration Leader
RANDOLPH, MRS. RUTH SACKETT, *M.A.*, Associate Professor of Home Economics
REYNOLDS, MRS. MAY STATLER, *Ph.D.*, Associate Professor of Home Economics
ROBERTS, FRANCES ELIZABETH, *M.S.*, Instructor in Home Economics
SCHLIMGEN, ELIZABETH ANNE, *B.S.*, Instructor in Home Economics
ZUILL, FRANCES LOUISE, *M.A.*, Professor of Home Economics; Director of Home Economics

FACILITIES FOR INSTRUCTION

The Department of Home Economics is located on the five floors of the east wing of the Home Economics Building. Laboratories, class and lecture rooms, and offices are provided here for related art, textiles and clothing, foods and nutrition, institutional management, and research.

HOME MANAGEMENT HOUSE. Adjacent to the Home Economics building is the new Home Management House completely equipped with modern furnishings and appliances. The house has been planned so that successive groups of eight senior girls living in the house for limited periods of time may acquire practical experience in all phases of home management including income division, account keeping, management of time and work, use of labor saving devices, marketing, preparing and serving food, and entertaining.

THE DOROTHY ROBERTS NURSERY SCHOOL located in a cottage on Linden Drive, opposite the Home Management House, serves as a laboratory where junior students in

dietetics gain experience in child nutrition and where senior students study child care and training with opportunity to observe behavior problems of children.

INSTITUTIONAL MANAGEMENT. The practice in institutional economics is done in connection with a tea room and cafeteria in the Home Economics Building supplemented by trips to inspect and study State sanitoria, large hotels, restaurants, settlements and wholesale houses. Graduate work is carried on in cooperation with the Memorial Union Commons where the student does intensive work for at least a semester.

ADMISSION

Requirements for admission may be found in the General Information Bulletin.

STUDENT EXPENSE

For information regarding living costs, tuition and fees, and student employment, consult the General Information Bulletin.

SCHOLARSHIPS, FELLOWSHIPS, AND LOAN FUNDS

Students should consult the General Information Bulletin for a list of available scholarships, fellowships, and loan funds. Many of these funds are open for students in all colleges while others are limited to specific groups. Attention is directed especially to the funds established for students in home economics, i.e., the Christine Margaretha Steenbock fellowshhip, the Omicron Nu scholarship, the Dorothy Roberts Memorial scholarship, and the college fellowship for home economics.

Graduate students should also consult the bulletin of the Graduate School for detailed information relative to such funds available to graduate students in home economics.

HONORS IN SCHOLARSHIP

SOPHOMORE HONORS AND SOPHOMORE HIGH HONORS are awarded on the basis of a minimum of two full years of work, not less than 60 credits, completed in residence. A student who earns during these two years, 135 grade-points plus one and one-half grade-points for each credit above 60, will be awarded Sophomore Honors. A student earning 165 grade-points, plus two grade-points for each credit above 60, during these two years, will be awarded Sophomore High Honors.

SENIOR HONORS AND SENIOR HIGH HONORS are awarded on the basis of a minimum of two full years of work, not less than 60 credits, completed in residence, for the second half of the four-year course. The remaining prerequisites for Honors and High Honors for seniors are the same as for the respective honors for sophomores as explained above.

HOME ECONOMICS ORGANIZATIONS

The Euthenics Club is open to all students in home economics.

A chapter of the national honor society, Omicron Nu, is maintained by faculty and student members.

A chapter of the professional home economics sorority, Phi Upsilon Omicron, has an active membership among senior, junior and sophomore students.

ADVANCED INDEPENDENT WORK

A student who has taken his freshman and sophomore work at the University of Wisconsin, whose grade-point average for these first two years' work is 2.6 or higher, and who is recommended by three of his sophomore instructors, may be permitted by the

major division or department of his choice to pursue advanced independent work during the remainder of his course. At the inception of this advanced independent work, the major division or department shall outline for the student a five-semester plan of study, a whole or part of which is to be pursued independently of course and classroom requirements, and which shall include a thesis. Upon recommendation of the division or department and upon approval by the Graduate Office of work done on the thesis, such a student may be admitted to the Graduate School at the end of the seventh semester, thereby becoming subject to its regulations and eligible to its scholarships. The student who, at the close of the eighth semester, has met the general requirements outside the major, has passed a comprehensive examination set by the division or department and covering his last four semesters' work within the major, and is recommended by his division or department and by the College of Agriculture, shall be granted the bachelor's degree. If the program is followed during the next semester, the student who has passed a comprehensive examination set by the division or department covering his work within the major, has had his completed thesis approved by a committee of three appointed by the Graduate Office, and is recommended by his division or department and by the Graduate School, shall be granted the master's degree at the end of the ninth semester.

CURRICULA IN HOME ECONOMICS

LEADING TO THE DEGREE OF BACHELOR OF SCIENCE (HOME ECONOMICS) OR BACHELOR OF SCIENCE (HOME ECONOMICS AND EDUCATION)

The Department of Home Economics offers courses dealing with social and economic conditions affecting the home and family, the care and training of children, parent education, foods and nutrition, textiles and clothing, and art in everyday life. The courses are planned to meet the needs of five classes of students:

1. Undergraduates who desire a knowledge of home economics as a part of a general education.
2. Undergraduates who desire to make a detailed study of home economics in preparation for a professional career other than teaching.
3. Undergraduates who wish to teach home economics in secondary schools, vocational schools, extension courses, and institutions of higher learning.
4. Graduate students who have the educational background to prepare for research work in the various phases of home economics.
5. Graduate students who wish to extend their professional education in a special phase of home economics.

GENERAL REQUIREMENTS

The degree of Bachelor of Science (Home Economics) is conferred upon those who complete a major in home economics. A total of 124 credits and 124 grade-points is required for graduation. One year of physical education is also required. Seventeen credits exclusive of physical education may be carried each semester, with the privilege of increasing the number to 18 credits provided the student has received a grade of A or B in each subject carried the preceding semester. All students including seniors, must carry at least 14 credits each semester, unless given permission by the Executive Committee to carry a reduced schedule.

Certain foreign-language requirements must be met by home economics students who major in food and nutrition, related art, nursing, and applied bacteriology, and by those who take the non-professional major. There are no language requirements in the clothing and textile major, the journalism major, or the general professional major for those students who are qualifying for a teacher's certificate.

A total of 16 credits in a single foreign language must be earned in those majors which require foreign language, except for students who enter with 4 high-school

units in one language, or a total of 5 units in two languages. Students entering with 2 or more units of a foreign language must continue the same language for 8 credits. Students who desire to change to a different language or who enter with less than 2 units are required to take 16 credits in one foreign language, 8 of which are counted as electives.

Students who choose home economics majors in which foreign language is required are given an opportunity to take the intermediate attainment test, which if passed will absolve the student from further language requirements.

A student in home economics must have at least 25 credits and 25 grade-points before she becomes a sophomore, at least 58 credits and 58 grade-points before she becomes a junior, and at least 88 credits and 88 grade-points before she becomes a senior.

Home economics students must present a grade-point average of 1.0 on all courses taken in the University in order to be recommended for graduation.

Students who enter with advanced standing credit, including two or more credits in home economics, may omit Home Economics 9, 1 credit.

A student given partial credit in a required course and who completes a more advanced required course for which the partially credited course is a prerequisite may substitute electives to make up the deficiency.

Students earning a grade of A in English 1a are excused from further work in freshman English. They may even be exempt from the full year of English if they pass the exemption tests given during the first two weeks of the semester.

MAJORS

A major in home economics may have not less than 26 nor more than 48 credits in home economics subjects. Home Economics 2, 9 and 109 are general courses required of all candidates for the degree of B.S. in Home Economics or B.S. in Home Economics and Education. Not more than 40 credits in home economics, exclusive of 2, 9 and 109, may be counted towards the graduation requirements for either degree. Educational Methods 52 and 156 are not counted as home economics.

The majors (outlined in detail in the following pages) which lead to professional work in the field of home economics are: (1) general professional major—teaching of home economics, (2) food and nutrition major—(hospital dietitian or institutional management), (3) clothing and textile major, (4) applied bacteriology major, (5) nursing or hospital administration major, (6) related art major, and (7) home economics journalism major. There is also a non-professional major for a general education in home and family life.

Students must choose a major at the beginning of the junior year and will be assigned to an adviser in the major department. A major may be chosen earlier in the course.

THESIS

Candidates for a degree are given the privilege of presenting a thesis. A thesis must represent original work upon some subject which has been arranged with the student's adviser and the head of the department. Students with good scholastic records are encouraged to take advantage of the opportunity to write a thesis. If a thesis is elected a total of 4 credits must be taken.

MINORS FOR LETTERS AND SCIENCE STUDENTS

A minor in home economics is not less than 10 credits nor more than 20 credits in home economics subjects. The following may be selected:

(1) A minor in foods shall consist of Home Economics 3, 3 credits; Home Economics 4, 3 credits; and Home Economics 6, 4 credits; a total of 10 credits.

(2) A minor in clothing and textiles must total 10 credits and include Home Economics 2, 5, 10, and 11. The textile teaching minor may include courses 2, 5, 10, 11, 50 52, 97 and other vocational and related courses to make 20 credits.

(3) A minor in related art may be taken by general professional majors in home economics, majors in home economics journalism, and majors in art education or majors in other departments in the University. A minor in related art must include 10 credits to be selected from Home Economics 2, 8, 18, 20, 94, 95, 114, 116, 121, 194. For students who plan to teach, a suggested sequence for a related art minor is Home Economics 8, 18, 20, 95, 194.

NON-PROFESSIONAL MAJOR IN HOME ECONOMICS

This curriculum is planned for students who wish to major in home economics as a part of a general education. It allows for a liberal choice of electives and is less technical in nature than the curricula that are designed to train for the various professions in the field of home economics.

In addition to 10 credits which a student is required to elect in the College of Letters and Science, 52 to 62 credits may be elected in any college. Not more than 22 of these credits may be elected in home economics. Early in the sophomore year a student should plan a logical sequence of courses with her adviser. *This is not a teaching major.*

The required work of the non-professional major is as follows:

FRESHMAN YEAR

First Semester	Credits	Second Semester	Credits
Engl. 1a—Freshman composition	3	Engl. 1b—Freshman composition	3
Foreign language (second year)	4	Foreign language (second year)	4
Chem. 1a—General chemistry	5	Chem. 1b—General chemistry	5
Home Econ. 9—Introduction to home economics	1	Home Econ. 3—Introduction to food study	3
Home Econ. 2—Introduction to related art	3	Physical education	0
Convocation	0		
Physical education	0		
	16		15

SOPHOMORE YEAR

	Credits		Credits
Engl. 30, 32, 33 or 40—Literature	3	Electives	16
Home Econ. 5—Introduction to clothing study	2		
Home Econ. 50—Textile Chemistry	1		
Electives	10		
	16		16

JUNIOR YEAR

First Semester	Credits	Second Semester	Credits
Home Econ. 7—Housing and sanitation	3	Electives	16
Electives	12		
	15		16

SENIOR YEAR

Home Econ. 110—Household administration	3	Home Econ. 109—Humanics	4
Home Econ. 112—Household administration lab.	1	Electives†	12
Electives†	11		
	15		16

SUGGESTED ELECTIVES IN NON-PROFESSIONAL MAJOR. Non-professional majors interested in becoming costume designers, interior decorators, or textile designers should take additional courses offered in home economics, art history, and art education. In the latter, 10 credits constitute a minor.

If a student makes a careful selection of courses in English and journalism with proper electives in home economics, the field of home economics journalism or free lance writing offers possibilities for the non-professional major.

Housing management is a new vocational field requiring women capable of managing groups of residential housing units. Training is necessary in the social and economic aspects of housing, the management of personnel and finance, care and maintenance of dwellings, as well as the legal relationships involved. Students interested in this field should elect courses in economics and sociology, house furnishing and decoration, psychology, city planning, landscape design, land economics, property insurance, labor problems, and real property.

PROFESSIONAL MAJORS IN HOME ECONOMICS

The subjects of the first two years are common to all professional majors except for the addition of Agricultural Journalism 8 and Home Economics 20 in the sophomore year of the home economics journalism major and the science requirements in the sophomore year in the related art major. The curriculum for the freshman and sophomore years follows:

FRESHMAN YEAR

First Semester	Credits	Second Semester	Credits
Engl. 1a—Freshman composition	3	Engl. 1b—Freshman composition	3
Foreign language (second year) or elective	4	Foreign language (second year) or elective	4
Chem. 1a—General chemistry	5	Chem. 1b—General chemistry	5
Home Econ. 9—Introduction to home economics	1	Home Econ. 3—Introduction to food study	3
Home Econ. 2—Introduction to related art	3	Physical education	0
Convocation	0		
Physical education	0		
	16		15

SOPHOMORE YEAR

Physics 65**	3	Physics 65**	3
Home Econ. 5—Introduction to clothing study	2	Home Econ. 50—Textile chemistry	1
Biochemistry 3	4	Agr. Bact. 4—General survey	4
Physiol. 1—Elements of physiol.*	4	Electives	7
Electives (Econ. 1a recommended)	3		
	16		15

*Five-year nursing course majors should substitute Physiology 4.
**Physics 61, 5 cr. may be substituted.
†May include Home Economics 100, thesis. Sufficient home economics electives must be selected to give a minimum of 18 credits in home economics courses exclusive of Home Economics 2, 9 and 109.

GENERAL PROFESSIONAL MAJOR

The junior and senior years of the general professional major allow 31-43 elective credits if the language requirement was satisfied in high school or 31-35 if the high-school language is continued. A professional interest may be emphasized since in the four-year curriculum 40-52 free electives are allowed out of the 124 credits required for the Bachelor of Science degree. This major may be taken for a general education, or directed toward teaching in secondary or vocational schools, home economics extension, general home economics commercial consultant, and for any professional work which requires foods and nutrition, clothing and textiles, household administration, and other phases of home economics as basic preparation. The requirements of the junior and senior years are as follows:

JUNIOR YEAR

First Semester	Credits	Second Semester	Credits
Home Econ. 4—Problems of food supply	3	Home Econ. 6—Nutrition and dietetics	4
Home Econ. 7—Housing and sanitation	3	Home Econ. 8—House furnishings	2
Home Econ. 10--Clothing economics	2	Home Econ. 11—Problems in applied dress design	3
Home Econ. 20—Costume design and selection	2	Electives	7
Electives	5		
	15		16

SENIOR YEAR

Home Econ. 110, 112—Household administration	4	Home Econ. 109—Humanics	4
Electives†	12	Electives†	12
	16		16

TEACHING HOME ECONOMICS IN HIGH SCHOOLS, VOCATIONAL SCHOOLS AND GRADES. For the high-school teaching major in home economics a total of 124 credits and 161 grade-points is required for the Bachelor of Science degree and the teacher's certificate. It is desirable that electives be grouped for a definite purpose such as a teaching minor in addition to the home economics teaching major. A minor varies from 10 to 20 credits of work in a single department. The following minors have proved satisfactory in combination with a home economics major: chemistry, physics, physiology, mathematics, English, modern language, Latin, history, sociology, and journalism. Students should discuss the matter of majors in home economics and minors in other departments with their faculty advisers.

REQUIREMENTS FOR TEACHERS' CERTIFICATES. Students receiving the degree in the home economics professional major and taking the required work in education will receive the degree of Bachelor of Science (Home Economics and Education) and will be entitled to receive the University Teachers' Certificate upon recommendation of the Department of Home Economics. A total of 18 credits in education is required as follows:

Education 74, The School and Society, 3 credits
Education 75, The Nature and Direction of Learning, 5 credits
Educational Methods 52, Teaching of Home Economics, 5 credits
Electives in the Department of Education, 5 credits

Students who elect Educational Methods 156 for 4 credits take Educational Methods 52 for 3 credits only.

†May include Home Economics 100, thesis.

Courses in child development and vocational guidance are desirable electives for home economics teachers.

Students entering with advanced standing in Educational Methods 52 should take the Seminar in Home Economics Education unless excused by the Department of Home Economics.

Education 75 may be taken only by those registered for the University Teachers' Certificate, and credits in Education 75 are not counted toward the graduation requirements for the B.S. degree in Home Economics, but are counted toward the requirements for the B.S. degree in Home Economics and Education.

Students desiring to qualify for the University Teachers' Certificate must have a grade-point average of 1.3 for the first two years of college work in order to register in the School of Education as a candidate for the teachers' certificate at the beginning of the junior year. To meet the requirements for a license to teach in Wisconsin as set up by the Department of Public Instruction students must present one academic minor (15 credits) to qualify for teaching in small high schools.

Vocational School Certificate. In order to be certified to the State Board of Vocational Education for a certificate as instructor in vocational homemaking, a student must complete a professional major, including 18 credits in education for the University Teachers' Certificate and the required courses in vocational education, and must be recommended for teaching by the Department of Home Economics.

In addition to the four-year course a candidate for the vocational homemaking certificate is expected to have practical experience in home management. Plans for obtaining this experience in vacation periods and for reporting the details of the work should be made with the instructor in charge of household administration. Work at the home management house is also required.

Extension in Home Economics. A student preparing for extension work in home economics follows the general plan of the teaching major, taking in addition to the required courses in education such electives as psychology, rural sociology, agricultural journalism, agricultural economics, extension methods and other courses recommended by the home economics extension staff. A minor in agriculture is recommended.

Commercial Consultant in General Home Economics. A commercial consultant in home economics should during the four-year professional course in home economics take Home Economics 126 and at least 10 credits in electives concentrated in economics, sociology or journalism to prepare for work with public utilities, food companies, or women's page editor on newspapers.

Social Welfare Work. If a home economics student plans to prepare for social welfare work, she should select the general professional major. Her electives should include Economics 1a and two courses in sociology from each of the following groups to make a total of 15 credits: Group A—Sociology 1, 139, 148, 247; Group B—Sociology 46, 145, 150, 249.

The majority of positions in social welfare now requires a year of graduate work in social administration.

MAJOR IN FOOD AND NUTRITION

The major in food and nutrition is planned to meet the demands for trained dietitians in hospitals, in county relief nutrition service, in social welfare associations, in medical clinics as consultant dietitians, and in university commons, tea rooms, and public school cafeterias and in other nutrition positions such as workers in experiment stations. The curriculum for the first two years is found on page 234. The curriculum for the last two years is as follows:

HOSPITAL DIETETICS

JUNIOR YEAR

Home Econ. 4—Problems of food supply	3	Home Econ. 6—Nutrition and dietetics	4
Home Econ. 7—Housing and sanitation	3	Electives*	12
Electives*	9		
	15		16

SENIOR YEAR

Home Econ. 110-112—Household administration	4	Home Econ. 109—Humanics	4
Home Econ. 125—Diet therapy	3	Electives†	12
Physiological Chemistry 104 or Home Econ. electives	4		
Electives†	4		
	15		16

INSTITUTIONAL MANAGEMENT

JUNIOR YEAR

Home Econ. 4—Problems of food supply	3	Home Econ. 6—Nutrition and dietetics	4
Home Econ. 7—Housing and sanitation	3	Home Econ. 22—Marketing and large quantity cookery	2
Electives**	9	Electives**	10
	15		16

SENIOR YEAR

Home Econ. 110-112—Household administration	4	Home Econ. 109—Humanics	4
Home Econ. 122—Organization and administration of institutions	3	Home Econ. 133—Tea room and cafeteria management	3
Electives†	9	Electives†	9
	16		16

MAJOR IN BACTERIOLOGY

After their sophomore year students may take advanced courses in bacteriology which will prepare them for graduate work in bacteriology or for a few types of bacteriological positions. A master's degree will usually be prerequisite for the bacteriological positions open to women in commercial and public health laboratories. Women students who would like to specialize in bacteriology should consult some member of the teaching staff of the Department of Agricultural Bacteriology or of Medical Bacteriology, preferably before enrollment in the University or as early as possible during their university work.

The major for students in Home Economics consists of a minimum of 19 credits including the required course in bacteriology. Electives may be chosen from the following:

*For admission as student dietitians in approved hospitals and other institutions courses in education, psychology, sociology, economics, large quantity cookery, organic chemistry and institutional administration are required.

**Students preparing to take graduate training courses in administration must include organic chemistry, physiological chemistry, education, economics, sociology, psychology and accounting.

†May include Home Economics 100, thesis.

First Semester	Credits
Agr. Bact. 100—Thesis	2
Agr. Bact. 123—Soil bacteriology	3
Agr. Bact. 125—Food bacteriology	3
Agr. Bact. 130—Determinative bacteriology	2-3
Agr. Bact. 231—Seminary	1
Med. Bact. 102—Medical bacteriology	5
Zoology 111—Microtechnique	3

Second Semester	Credits
Agr. Bact. 100—Thesis	2
Agr. Bact. 121—Dairy bacteriology	3
Agr. Bact. 124—Advanced technique	3
Agr. Bact. 126—Physiology of bacteria	3
Agr. Bact. 231—Seminary	1
Vet. Science 126—Infection and immunity	3
Zool. 119—Animal parasites and man	3
Med. Bact. 104—Immunology	3-4

The required courses are as follows:

JUNIOR YEAR

Home Econ. 4—Problems of food supply	3	Home Econ. 6—Nutrition and dietetics	4
Home Econ. 7—Housing and sanitation	3	Electives	12
Electives	10		
	16		16

SENIOR YEAR

Home Econ. 110, 112—Household administration	4	Home Econ. 109—Humanics	4
Electives†	12	Electives†	12
	16		16

MAJOR IN CLOTHING AND TEXTILES

The following curriculum in clothing and textiles is planned to meet the needs of students who expect to teach clothing and textiles. Students who wish to enter store work should elect courses in psychology, journalism, economics and salesmanship. Those preparing for costume design work should take added courses in related art, fine and applied arts, and history.

Students planning to teach home economics in secondary schools should take Home Economics 6 for 4 credits in addition to Home Economics 3 and 4.

JUNIOR YEAR

	Credits		Credits
Home Econ. 7—Housing and sanitation	3	Home Econ. 8—House furnishings	2
Home Econ. 10—Clothing economics	2	Home Econ. 18—Interior design	2
Electives	10	Home Econ. 11—Problems in applied dress design	3
		Electives	8
	15		15

SENIOR YEAR

Home Econ. 110, 112—Household administration	4	Home Econ. 109—Humanics	4
Home Econ. 97—Advanced problems in applied dress design	2	Home Econ. electives*	2
Electives†	10	Electives†	10
	16		16

*Home Economics electives should be selected from the following courses: 20, 104, 106.
†May include Home Economics 100, thesis.

MAJOR IN RELATED ART

The related art major includes courses in home furnishing, costume design, decorative textiles, clothing and foods. It gives preliminary training for commercial positions as advisers in home furnishing departments, as editors of women's sections in magazines and papers, as professional costume designers, and as interior designers. *This is not a teaching major for grades or high schools.*

Students preparing for editorial work should elect a journalism minor; those preparing for professional costume designing should elect additional courses in clothing, art history and art education; and those preparing for interior design and house furnishing work should elect Home Economics 114, The technique of interior design, 2 credits.

All students in this major should elect 10 credits in art education.

SOPHOMORE YEAR

Biochemistry 3	4	—or— Physics 61 or Agr. Bact. 4	5-4
Physiol. 1—Elements of physiology	4	Home Econ. 20—Costume design and selection	2
Home Econ. 5—Introduction to clothing study	2	Electives*	8-9
Home Econ. 50—Textile chemistdy	1		
Electives*	9		
	16		15

JUNIOR YEAR

Home Econ. 7—Housing and sanitation	3	Home Econ. 8—House furnishings	2
Home Econ. 95—Hand loom weaving	2	Home Econ. 18—Interior design	2
Electives*	11	Home Econ. 94—Decorative textiles	3
		Electives*	8
	16		15

SENIOR YEAR

Home Econ. 110, 112—Household administration	4	Home Econ. 109—Humanics	4
Electives in major**	2	Electives in major**	4
Electives†	10	Electives†	7
	16		15

MAJOR IN HOME ECONOMICS JOURNALISM

A major in home economics journalism is arranged for those who wish to prepare for journalism as a profession. Freshman requirements are identical with those of other professional majors, but sophomorse must take Agricultural Journalism 8 and Home Economics 20 as additional required work. Students in this major are urged to use their electives in economics and sociology.

JUNIOR YEAR

Home Econ. Nutrition and dietetics***	4	Agr. Journ. 111—Home economics feature writing	2
Home Econ. 7—Housing and sanitation	3	Home Econ. 8—House furnishings	2
Home Econ. 10—Clothing economics	2	Electives	12
Journ. 2—Reporting	3		
Home Econ. 4—Problems of food supply	3		
Electives	1-5		
	16		16

*From 3-4 cr. must be selected from the following: Home Econ. 11, Home Econ. 50. Home Econ. 117 Letters and Science credits (14) must be elected from the following departments: English, Language, Comparative Literature, History, Art History, Psychology, Sociology or Economics. Ten credits in art education are suggested.

**Courses in related art numbered above 100.

†May include Home Economics 100, thesis.

***May substitute Home Economics 117.

SENIOR YEAR

Home Econ. 110, 112—Household administration	4	Journ. 123—Women's department	2
Home Econ. 126—Extension methods	2	Agr. Journ. 103—Publicity methods	2
Journ. 3—Copy editing	3	Home Econ. 109—Humanics	4
Electives†	7	Electives†	8
	16		16

NURSING OR HOSPITAL ADMINISTRATION MAJOR

The combined course in home economics and nursing leads to the degree of Bachelor of Science (Home Economics), and to the Certificate of Graduate Nurse. The following specific requirements must be satisfactorily met:

Completion of the required work of the freshman and sophomore years of the professional major in home economics.

Completion of the following additional courses:

JUNIOR YEAR

Home Econ. 7—Housing and sanitation	3	Home Econ. 6—Nutrition and dietetics*	4
Home Econ. 22—Marketing and large quantity cookery	2	Home Econ. 133—Tea room and cafeteria management	3
English 30a, 32a, 33a or 40a—Literature	3	English 30b, 32b, 33b or 40b	3
Electives	8	Dietetics 1 or equivalent	2
		Nursing 1	3
	16		15

Either Anatomy 120 or Physiology 4 must be elected during the sophomore year.

Electives sufficient to bring the total credits of work required by the Department of Home Economics up to 94. Twenty-seven months of resident professional instruction in nursing.

A total of 129 credits and 129 grade-points, including 94 required by the Department of Home Economics and 35 earned during the period of resident professional instruction is required for graduation.

The resident professional instruction includes 27 months of ward practice and four semesters of nursing courses amounting to 35 credits as follows:

Therapeutics 1	3 Credits
Medicine & Surgery 1, 2, 3, 4, 5, and 6	19 Credits
Principles of Nursing 2, 3, 4, & 5	10 Credits
Education 47	3 Credits

GRADUATE WORK IN HOME ECONOMICS

Students who wish to enroll in the Graduate School for graduate study in home economics toward a Master's or a Doctor of Philosophy degree should consult the bulletin of the Graduate School for detailed information. At their earliest opportunity they should also confer with the Director of Home Economics and the Dean of the Graduate School regarding their course of study.

†May include Home Economics 100, thesis.
*May substitute Home Economics 117.

DEPARTMENTS OF INSTRUCTION

Abbreviations used in the announcement of courses:
Yr.—Course continues throughout the year; I—given during the first semester; II—given during the second semester; I and II—repeated each semester; Cr.—credits, i.e. hours of credit per semester; *—credits to be arranged.

CLOTHING AND TEXTILES

Professor Manning, *chairman*; Associate Professor Juaire; Assistant Professor Abry; Instructor Hill.

5. Introduction to Clothing Study. I, II; 2 cr. Historical background, production, and manufacture of commercial fibers. Construction and study of cotton garments. Lab. fee $2.25 per lab. cr. Miss Manning, Mrs. Hill.

10. Clothing Economics. I; 2 cr. Lectures and student topics covering consumer clothing problems. Prerequisite: Home Economics 5 or equivalent. Miss Manning.

11. Problems in Applied Dress Design. I, II; 3 cr. Application of art and economic principles to the selection and construction of costume suitable for each individual. Two hours for discussion, four hours lab. Prerequisite: Home Economics 5. Lab. fee $4.50. Miss Juaire.

50. Textile Chemistry. I, II; 1 or 3 cr. Microscopical, physical, and chemical study of the fibers and fabrics. Prerequisite: Chemistry 1a for those taking course for 1 cr.; Chemistry 1a-b for those taking course for 3 cr. Lab. fee 1 cr. $2.25, 3 cr. $6.00. Miss Abry.

97. Advanced Problems in Applied Dress Design and Costume Selection. I, II; 2 cr. Selection and use of design in modeling and draping outer garments in wool and silk. Independent work students required to complete problems outside. Prerequisites: Home Economics 11 or equivalent and senior standing. Lab. fee $4.50. Miss Juaire.

100. Thesis. 4 cr. Lab. thesis-fee $2.25 per cr. Miss Manning and staff.

104. History of Costume. I; 2 cr. History of costume from antiquity to the 18th century. Seniors and graduates. Miss Manning.

106. Seminar, American Costume. II; 2 cr. From the American revolution to the present day. Open to seniors and graduates. Miss Manning.

151. Advanced Textile Chemistry. I; 2 cr. Special problems in fabric analysis; tests on fabrics for Wisconsin consumers and State institutions. Prerequisites: Home Economics 50 or its equivalent and senior or graduate standing. Lab. fee $4.50. Miss Abry.

180. Topical Work. Textiles and Clothing. Yr; *cr. Lab. fee $2.25 per lab. cr. Miss Manning, Miss Juaire, Miss Abry.

200. Research in Textile Chemistry. I, II; *cr. Lab. fee $2.25 per lab. cr. Miss Manning and staff.

FOODS, NUTRITION AND ADMINISTRATION

Professors Parsons, Zuill, *chairman;* Associate Professors Cowles, Personius, Reynolds; Assistant Professors Henderson, Patton; Lecturer Mendenhall; Instructors Everson, Haan, Hussemann, Mayer, Mortimer, Newsom, Roberts.

3. Introduction to Food Study. I, II; 3 cr. Study of the principles used in the selection, preparation and service of foods. Prerequisite: Chemistry 1a or equivalent. Lab. fee $4.50. Miss Personius and staff.

4. Problems of Food Supply. I; 3 cr. Emphasizes three phases of food study: problems of home food preservation, equipment used in preparation, and problems in marketing. Projects in meal planning and service. Prerequisites: Home Economics 3, bacteriology, physics. Lab. fee $4.50. Miss Hussemann, Mrs. Mortimer.

6. Nutrition and Dietetics. I or II; 4 cr. Principles of nutrition and their applications to feeding the family. Laboratory work includes dietary calculations, nutrition studies on laboratory animals and metabolism studies. Prerequisites: Home Economics 3, Physiology 1, Biochemistry 3. Lab. fee $2.25. Mrs. Reynolds, Miss Hussemann, Miss Roberts.

9. Introduction to Home Economics. I; 1 cr. An orientation course in home economics for freshmen. Miss Zuill and staff.

100. Thesis. 4 cr. Lab. fee $2.25 per lab. cr. Miss Zuill and staff.

105. Experimental Food Study. I, II; 2 cr. An introduction to methods of research in foods and nutrition and in commercial foods laboratories. Senior or graduate standing; consult instructor for permission to register. Lab. fee $4.50. Miss Personius.

117. Survey of Nutrition Principles. I; 2 cr. Developments in the science of nutrition with application to practical dietary problems. Junior standing. Not open to students in majors requiring Home Economics 6. Mrs. Reynolds.

125. Diet Therapy. I, II; 3 cr. For students preparing for hospital dietetics or teaching nutrition. Includes abnormalities of metabolism, use of therapeutic dietary measures and adaptations in normal nutrition. Prerequisites: Physiological Chemistry 104 and Home Economics 6. Fee $2.25. Miss Parsons and staff.

127. Problems in Human Nutrition. I, II; 2 cr. Lectures and reports. Results of recent research and observation in relation to problems of human nutrition. Miss Parsons.

180. Topical Work in Foods and Nutrition. Yr; *cr. Lab. fee $2.25 per lab. cr. Staff.

200. Research in Foods and Nutrition. I, II; *cr. Lab. fee $2.25 per lab. cr. Miss Parsons, Miss Personius, Mrs. Reynolds.

280. Seminar in Nutrition. Yr; 1 cr. Miss Parsons, Mrs. Reynolds.

INSTITUTIONAL MANAGEMENT

22. Marketing and Large Quantity Cookery. I or II; 2 cr. Time study, economic study, and marketing study in the selection, purchase, and preparation of foods in large quantities. Prerequisite: Home Economics 4 or concurrent registration. Lab. fee $2.25. Miss Patton.

122. Organization and Administration of Institutions. I; 3 cr. A study of organization for institutions; personnel and business administration. Planning and equipment of food units. Prerequisites: Food major, senior standing. Miss Patton.

133. Tea Room and Cafeteria Management. I or II; 3-4 cr. Study of organization and operation of tea rooms and cafeterias. Laboratory work in home economics tea room and study in University Commons. Field inspection trips. Prerequisites: Home Economics 6 and 22 or concurrent registration. Lab. fee $2.25. Miss Patton and staff.

180. Topical Work in Institutional Management. Yr; *cr. Miss Patton.

222. Laboratory and Research Work. I, II; 2-4 cr. Detailed study of accounting and organization and labor problems as an interne in the University Commons. Miss Patton and Mr. Halverson.

THE HOME AND THE FAMILY

1b. General Survey, Household Management and Family Budget Problems. II; 2-3 cr. Lectures, 2 cr; conference, 1 cr. Family budgets, standards of living, influence of income, family size and personnel, costs of living, market characteristics. Conference hours adapted to needs of special groups. Open to juniors and seniors in any college. Miss Cowles and staff.

7. Housing and Sanitation. I, II; 3 cr. Housing standards and conditions; home ownership, financing, house design and construction from consumer viewpoint. Laboratory includes analysis, criticism, and drawing of house plans; reading blueprints. Prerequisite: Home Economics 2. Lab. fee $2.25. Miss Cowles, Miss Roberts, Miss Mayer.

72. Home Nursing. I; 1 cr. A two-hour laboratory course in first aid and home nursing. Open to juniors and seniors in any college. Miss Bunge.

100. Thesis. 4 cr. Students with good scholastic records are given the privilege of doing an original piece of work for a thesis. Lab. fee $2.25 per lab. cr. Miss Zuill and staff.

109. Humanics. I or II; 1-4 cr. Home and family in contemporary society; influences of heredity and environment; prenatal and natal care; child development, training, care; family relationships; nursery school observation. Seniors and graduates. Miss Zuill, Dr. Mendenhall, Miss Roberts and Miss Newsom.

110. Household Administration. I or II; 3 cr. Family's income; income distribution; earning homemakers; spending of income; budgeting; scientific management in household; consumer buying problems. Prerequisite: Senior or graduate standing. Miss Cowles.

112. Residence in Home Management House. I or II; 1 cr. Lab. fee $6.75. Provides experience in all phases of scientific management as applied to the home. Prerequisite: Home Economics 110 or concurrent registration. Miss Haan.

180. Topical Work in Housing and Household Administration. Yr; *cr. Lab. fee $2.25 per lab. cr. Staff.

220. Consumer Problems. II; 2 cr. Consumer in economic system; living standards; effects of income and market characteristics on consumption; government programs; evaluation of consumer movement, organizations, producer aids; family expenditures. Miss Cowles.

223. Seminar in Housing Problems. II; 2 cr. Analysis of housing problems; relation of income distribution and land costs, credit, labor, materials, and construction methods to housing. Legislation, housing education, government developments in housing. Miss Cowles.

RELATED COURSES IN EDUCATIONAL METHODS

52. (Educ. Methods) Teaching of Home Economics. I, II; 3 or 5 cr. Study of problems of home economics teacher, including lesson plans, courses of study, equipment, reference and illustrative material. Observation and practice are afforded. Prerequisites: Senior standing, professional teaching major, Education 75. Open also to seniors minoring in home economics. Miss Henderson, Mrs. Nofsker.

126. Extension Methods in Home Economics. I; 2 cr. Cooperative extension program; organization and conduct of work with rural women; demonstrations, meetings, publications, exhibits, analyzed from standpoint of teaching functions, adaptability to subject matter. Miss Pollock and Extension staff.

156. (Educ. Methods) Teaching Homemaking in the Part-Time School and Rural Vocational Centers. Yr; 2 cr. Lect.; 2 cr. off-campus teaching. For teaching in George-Deen and city vocational schools. Building homemaking curricula for rural

and urban enters; organization of adult homemaking programs; methods and materials. Prerequisites: Senior standing and Education 75. Miss Henderson.

180. Topical Work in Home Economics Education. Yr; *cr. Miss Henderson, Miss Zuill.

188. (Educ. Methods) Seminar in Home Economics Education. I; 2 cr. Trends, studies and research in different phases of home economics education. Changing philosophy; curriculum planning; developments in course content, organization, evaluation programs; individual problems. Prerequisites: Graduate standing, experience in teaching. Miss Zuill.

RELATED ART

Associate Professor Randolph, *chairman*; Assistant Professors Allen, Hamann; Instructors Kleinsorge, Leindorff, Schlimgen.

2. Introduction to Related Art. I, II; 3 cr. Fundamentals of art underlying consumer education. Opportunities for selection and combinations of materials for use in house furnishing and in costume. Lab. fee $4.50. Mrs. Randolph and staff.

8. House Furnishing. I, II; 2 cr. Study of the home unit—site, floor plan and house. Fundamentals of art underlying the use of materials in the home. Lectures and demonstrations. Prerequisites: Elementary course in design and sophomore standing. Miss Hamann.

18. Interior Design. I, II; 2 cr. Art related to the problems of planning and furnishing the home with consideration of different economic conditions. Laboratory, demonstrations, field trips. Prerequisite: Home Economics 8. Lab. fee $4.50. Miss Hamann.

20. Costume Design and Selection. I, II; 2 cr. Application of design principles and style to dress and the improvement of personal appearance. A study of figure, color and personality types. Prerequisites: An elementary course in design and sophomore standing. Lab. fee $4.50. Miss Schlimgen, Miss Kleinsorge.

94. Decorative Textiles. II; 3 cr. Problems in original design and application to textiles. A study of traditional textile arts and modern developments. One lecture and 4 hours of laboratory. Prerequisites: Elementary course in design and sophomore standing. Lab. fee $4.50. Miss Allen.

95. Weaving: Development and Construction. I, II; 1-3 cr. Planning of problems in design, color, texture and their execution on the hand loom. Lectures and laboratory work. Prerequisite: Elementary course in design. Lab. fee $2.25 per lab. cr. Miss Allen.

114. The Technique of Interior Design. II; 2 cr. Shop practice through actual problems in interior design in stores and home. Prerequisites: Senior standing, Home Economics 18 and 1 semester of 116. Lab. fee $2.25. Miss Hamann.

116. Traditional Interior Design. Yr; 2 cr. Study of interior and exterior design in the historic periods. First semester—European periods; second semester—American periods and modern. Lectures, demonstrations, field trips. Prerequisites: Home Economics 8 or 118s and junior standing. Miss Hamann.

121. Advanced Costume Design. II; 2 cr. Training for style coordinating from the consumer and professional viewpoints. Problems to develop discrimination, good judgment and originality rather than technique in drawing. Prerequisites: A course in costume design or consent of instructor and senior or graduate standing. Lab. fee $4.50. Mrs. Randolph.

216. Seminar in Interior Decoration. II; 2-4 cr. Historical, economic and practical aspects of present-day interior design. Prerequisites: One-semester of Home Economics 116 and graduate standing. Mrs. Randolph.

MEDICAL SCHOOL

WILLIAM S. MIDDLETON, DEAN

FACULTY

EXECUTIVE COMMITTEE OF THE MEDICAL SCHOOL

WM. S. MIDDLETON, M. D., Chairman
H. C. BRADLEY, Ph.D.
R. C. BUERKI, M.D.
C. H. BUNTING, M.D.
P. F. CLARK, Ph.D.
J. S. EVANS, M.D.
J. W. HARRIS, M.D.
W. F. LORENZ, M.D.
W. J. MEEK, Ph.D.
E. A. POHLE, M.D.
E. R. SCHMIDT, M.D.
W. D. STOVALL, M.D.
W. E. SULLIVAN, Ph.D.
A. L. TATUM, M.D.

ACADEMIC STAFF

CHARLES ROBERT ALLEN, *M.A.*, Instructor in Physiology
THEODORE HIERONYMUS BAST, *Ph.D.*, Professor of Anatomy
ROBERT LEO BENNETT, JR., *M.D.*, Assistant Professor of Physical Therapy
JOHN EDWARD BENTLEY, *M.D.*, Associate Professor of Clinical Medicine
KARL HENRY BEYER, *Ph.D.*, Instructor in Physiology
EDWARD ASAHEL BIRGE, JR., *M.D.*, Instructor in Clinical Pathology
WILLIAM JEFFERSON BLECKWENN, *M.D.*, Professor of Neuropsychiatry
ALBERT J. BONER, *M.D.*, Instructor in Clinical Medicine
HAROLD CORNELIUS BRADLEY, *Ph.D.*, Professor of Physiological Chemistry
GEORGE VAN INGEN BROWN, *M.D.*, Emeritus Professor of Plastic Surgery
ROBIN CARL BUERKI, *M.D.*, Professor of Hospital Administration, Superintendent of Wisconsin General Hospital and Executive Secretary to Dean
CHARLES HENRY BUNTING, *M.D.*, Professor of Pathology
MEAD BURKE, *M.D.*, Assistant Professor of Pathology and Clinical Pathological Coordinator
ROBERT EMMETT BURNS, *M.D.*, Professor of Orthopedic Surgery
RALPH EMERSON CAMPBELL, *M.D.*, Associate Professor of Obstetrics and Gynecology
MARIE LOUISE CARNS, *M.D.*, Associate Professor of Medicine
SAMUEL HAMILTON CHASE, *D.D.S.*, Lecturer in Oral Hygiene
PAUL FRANKLIN CLARK, *Ph.D.*, Professor of Bacteriology
LLEWELLYN RATHBUN COLE, *M.D.*, Professor of Clinical Medicine
GARRETT ARTHUR COOPER, *M.D.*, Research Associate in Dermatology
FREDERICK ALLISON DAVIS, *M.D.*, Professor of Ophthalmology
HELEN PRATT DAVIS, *M.D.*, Instructor in Clinical Medicine
JAMES DOLLARD, *M.D.*, Instructor in Plastic Surgery
PETER A. DUEHR, *M.D.*, Instructor and Chief of Ophthalmologic Clinic
IVAN G. ELLIS, *M.D.*, Lecturer in Radiology
JAMES CLAUDE ELSOM, *M.D.*, Emeritus Professor of Physical Therapy
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SILAS MCAFEE EVANS, *M.D.*, Assistant Professor of Extra-Mural Teaching
JOHN AUGUSTINE ENGLISH EYSTER, *M.D.*, Professor of Physiology
WILLIAM M. FABER, *M.D.*, Instructor in Anatomy

WILLIAM JOHN FOCKE, *M.D.*, Assistant in Surgery
HARRY ROBERT FOERSTER, *M.D.*, Assistant Professor of Dermatology
OTTO HOTTINGER FOERSTER, *M.D.*, Professor of Dermatology
RUTH CALDWELL FOSTER, *M.D.*, Assistant Professor of Clinical Medicine
JOSEPH WASSON GALE, *M.D.*, Associate Professor of Surgery
FREDERICK DENKMAR GEIST, *M.D.*, Associate Professor of Anatomy
JOHN EUGENE GONCE, JR., *M.D.*, Professor of Pediatrics
EDGAR STILLWELL GORDON, *M.D.*, Instructor in Physiological Chemistry and Research Associate in Medicine
MORTON KAY GREEN, *M.D.*, Clinical Associate in Neuropsychiatry
CARL SAMUEL HARPER, *M.D.*, Assistant Clinical Professor of Obstetrics and Gynecology
JOHN WARTON HARRIS, *M.D.*, Professor of Obstetrics and Gynecology
FRANCES ANNA HELLEBRANDT, *M.D.*, Associate Professor of Physiology
RAYMOND C. HERRIN, *M.D.*, Associate Professor of Physiology
FRANCES ELIZABETH HOLFORD, *Ph.D.*, Assistant Professor of Bacteriology
JOHN HUSTON, *M.D.*, Supervisor of Extra-Mural Teaching
VOLNEY BUTMAN HYSLOP, *M.D.*, Professor of Oral Plastic Surgery
WALTER HENRY JAESCHKE, *M.D.*, Instructor in Clinical Pathology
HENRY MAXWELL KAY, *M.D.*, Associate in Clinical Medicine
MARIAN E. STARK KIMBLE, *Ph.D.*, Instructor in Clinical Chemistry
FRANK L. KOZELKA, *Ph.D.*, Assistant Professor of Toxicology
FRED KUNDERT, *M.D.*, Clinical Assistant in Ophthalmology
CHESTER M. KURTZ, *M.D.*, Assistant Professor of Medicine
KENNETH ELERY LEMMER, *M.D.*, Assistant Professor of Surgery
MARTHA E. LEWIS, *B.A.*, Instructor in Physical Therapy
WILLIAM FREDERICK LORENZ, *M.D.*, Professor of Neuropsychiatry
JOHN C. MCCARTER, *M.D.*, Assistant Professor of Pathology
KENNETH B. MCDONOUGH, *M.D.*, Assistant Professor of Pediatrics
ROSCOE LYLE MCINTOSH, *M.D.*, Associate Professor of Dermatology
ARTHUR JOSEPH MACHT, *M.D.*, Instructor in Neuropsychiatry
MABEL MASTEN, *M.D.*, Associate Professor of Neuropsychiatry
WALTER JOSEPH MEEK, *Ph.D.*, Professor of Physiology and Assistant Dean of the Medical School
FRANKLYN OTTO MEISTER, *M.D.*, Instructor in Neuropsychiatry
OVID OTTO MEYER, *M.D.*, Associate Professor of Medicine
WILLIAM SHAINLINE MIDDLETON, *M.D.*, Professor of Medicine and Dean of the Medical School
CHRISTIAN F. MIDELFART, *M.D.*, Assistant Professor of Medicine
FRED EDWARD MOHS, *M.D.*, Research Associate in Cancer and Instructor in Surgery
OTTO AXEL MORTENSEN, *M.D.*, Associate Professor of Anatomy
HARLAND WINFIELD MOSSMAN, *Ph.D.*, Associate Professor of Anatomy
WILLIAM ATWOOD MOWRY, *M.D.*, Clinical Professor of Medicine
MARC J. MUSSER, *M.D.*, Assistant Professor of Neuropsychiatry
EZRA EUGENE NEFF, *M.D.*, Associate Professor of Ophthalmology
MARK EDWIN NESBIT, *M.D.*, Instructor in Otolaryngology and Neuropsychiatry
WELLWOOD MACK NESBIT, *M.D.*, Professor of Otolaryngology
MERLE STARR NICHOLS, *Ph.D.*, Professor of Sanitary Chemistry
WILLIAM H. OATWAY, *M.D.*, Assistant Professor of Medicine
OSWALD SIDNEY ORTH, *Ph.D.*, Instructor in Physiology
ROGELIO PARDINAS, *M.D.*, Jonathan Bowman Memorial Fund Research Associate in Cancer
LESTER WARNER PAUL, *M.D.*, Associate Professor of Radiology
JOSEPH PESSIN, *M.D.*, Instructor in Neuropsychiatry
ERNST ALBERT POHLE, *M.D.*, *Ph.D.*, Professor of Radiology
FREDERICK JOHN POHLE, *M.D.*, Assistant Professor of Medicine
CLARENCE ALEXANDER POOR, *M.D.*, Instructor in Pathology

VAN RENSSELAER POTTER, *Ph.D.*, Research Fellow in Cancer
KARVER LOUIS PUESTOW, *M.D.*, Associate Professor of Medicine
HANS HEINRICH REESE, *M.D.*, Professor of Neuropsychiatry
WALTER CLARENCE REINEKING, *M.D.*, Lecturer on Tuberculosis
J. HOLDEN ROBBINS, *M.D.*, Instructor in Anatomy
HAROLD PAUL RUSCH, *M.D.*, Research Fellow in Cancer and Instructor in Physiology
AUGUST SAUTHOFF, *M.D.*, Clinical Associate in Neuropsychiatry
ERWIN RUDOLPH SCHMIDT, *M.D.*, Professor of Surgery
HERMAN CHARLES SCHUMM, *M.D.*, Associate Professor of Orthopedic Surgery
CHARLES VICTOR SEASTONE, *M.D.*, Assistant Professor of Bacteriology
M. HARRISON SEEVERS, *M.D.*, Associate Professor of Pharmacology
ELMER LOUIS SEVRINGHAUS, *M.D.*, Professor of Medicine
HERMAN HARVEY SHAPIRO, *M.D.*, Instructor in Medicine; Acting Chief Resident, Wisconsin General Hospital
IRA ROSCOE SISK, *M.D.*, Professor of Urology
HARVEY CHITTENDEN SLOCUM, *M.D.*, Instructor in Anesthesia
LINDLEY VINCENT SPRAGUE, *M.D.*, Instructor in Clinical Medicine
KATE STALEY, *M.S.*, Instructor in Physiology
REUBEN HAROLD STIEHM, *M.D.*, Associate Professor of Clinical Medicine
WILLIAM DAVISON STOVALL, *M.D.*, Director of the State Laboratory of Hygiene; Professor of Hygiene
JACOB WILLIAM STUTZMAN, *B.S.*, Instructor in Physiology
WALTER EDWARD SULLIVAN, *Ph.D.*, Professor of Anatomy
ARTHUR LAWRIE TATUM, *M.D.*, Professor of Pharmacology
HORACE KENT TENNEY, JR., *M.D.*, Associate Professor of Pediatrics
NORMAN GOODSELL THOMAS, *M.D.*, Instructor in Medicine
ALICE THORNGATE, *B.A.*, Instructor in Clinical Pathology
MADELINE JOSEPHINE THORNTON, *M.D.*, Assistant Professor of Obstetrics and Gynecology
ROBERT VAN VALZAH, *M.D.*, Professor of Medicine (on leave 1940-41)
WILLIAM L. WASLEY, *Ph.D.*, Organic Chemist in Cancer
ANNETTE WASHBURNE, *M.D.*, Associate Professor of Neuropsychiatry
RALPH MILTON WATERS, *M.D.*, Professor of Anesthesia
JOHN B. WEAR, *M.D.*, Associate Professor of Urology
LESTER L. WEISSMILLER, *M.D.*, Acting Assistant Superintendent, Wisconsin General Hospital
FRANK LAURENCE WESTON, *M.D.*, Associate Professor of Clinical Medicine
EDWIN F. WESTOVER, *D.D.S.*, Instructor in Dental Surgery
HERMAN WENZEL WIRKA, *M.D.*, Assistant Professor of Orthopedic Surgery
EDGAR J. WITZEMANN, *Ph.D.*, Associate Professor of Physiological Chemistry

ASSOCIATE TEACHING STAFF

ASHLAND

ASHLAND GENERAL HOSPITAL

JOHN M. DODD, M.D. ..... *Preceptor in Charge*

Associate Preceptors

ADELLION D. ANDRUS, M.D.
ALBERT BUTLER, M.D.
JOHN M. DODD, JR., M.D.
CLIFFORD A. GRAND, M.D.
FRED G. JOHNSON, M.D.
JOHN W. PRENTICE, M.D.
NILS V. SANDIN, M.D.
CLYDE J. SMILES, M.D.
FRANK D. WEEKS, M.D.
MELVIN L. YOUNG, M.D.

EAU CLAIRE

LUTHER AND SACRED HEART HOSPITALS

A

HARTWIG M. STANG, M.D. ..... *Preceptor in Charge*

Associate Preceptors

FIN G. ANDERSON, M.D.
SAM L. HENKE, M.D.
GJERMUND HOYME, M.D.
PETER MIDELFART, M.D.,
WALTER O. PAULSON M.D.
S. B. RUSSELL, M.D.
NELS WERNER, M.D.

B

HERMAN F. DERGE, M.D. ..... *Preceptor in Charge*

Associate Preceptors

FRED S. COOK, M.D.
EDWIN P. HAYES, M.D.
EVERETT L. MASON, M.D.
JOHN E. B. ZIEGLER, M.D.

JANESVILLE

MERCY HOSPITAL

A

WILLIAM T. CLARK, M.D. ..... *Preceptor in Charge*

Associate Preceptors

GEORGE W. BARTELS, M.D.
C. R. GILBERTSON, M.D.
RALPH C. HARTMAN, M.D.
WILLIS L. JOHNSON, M.D.
GEORGE S. METCALF, M.D.
FRANK W. VAN KIRK, M.D.
GUY C. WAUFLE, M.D.

B

WAYNE A. MUNN, M.D. ..... *Preceptor in Charge*

Associate Preceptors

BENJAMIN I. BRINDLEY, M.D.
FRANK B. FARNSWORTH, M.D.
RICHARD W. FARNSWORTH, M.D.
VINCENT W. KOCH, M.D.
FREDERICK H. KUEGLE, M.D.

C

THOMAS W. NUZUM, M.D. ..... *Preceptor in Charge*

Associate Preceptors

M. MEREDITH BAUMGARTNER, M.D.
FRANCIS M. FRECHETTE, M.D.
THOMAS O. NUZUM, M.D.
AUBREY H. PEMBER, M.D.
SAMUEL A. FREITAG, M.D.
EVERET C. HARTMAN, M.D.
STEWART F. RICHARDS, M.D.
THOMAS J. SNODGRASS, M.D.

LA CROSSE

A

Lutheran Hospital

Gunnar Gundersen, M.D.....*Preceptor in Charge*

Associate Preceptors

Edward S. Carlsson, M.D.
Paul C. Gatterdam, M.D.
Alf H. Gundersen, M.D.
Sigurd B. Gundersen, M.D.
John C. Harman, M.D.
Martin Sivertson, M.D.
Perry Walters, M.D.

B

St. Francis Hospital

William E. Bannen, M.D.....*Preceptor in Charge*

Associate Preceptors

Matthew A. McGarty, M.D.
Dean S. Smith M.D.
Eugene H. Townsend, M.D.
Herman E. Wolf, M.D.

MARSHFIELD

St. Joseph's Hospital

Walter G. Sexton, M.D.....*Preceptor in Charge*

Associate Preceptors

R. S. Baldwin, M.D.
F. A. Boeckman, M.D.
L. A. Copps, M.D.
K. H. Doege, M.D.
P. F. Doege, M.D.
S. Epstein, M.D.
Wm. Hipke, M.D.
R. W. Mason, M.D.
G. L. McCormick, M.D.
A. L. Millard, M.D.
R. P. Potter, M.D.
C. A. Vedder, M.D.
H. A. Vedder, M.D.
J. B. Vedder, M.D.

MILWAUKEE

Arthur J. Patek, M.D.....*Preceptor in Charge*
Charles H. Stoddard, M.D.....*Preceptor in Charge*

SHEBOYGAN

Sheboygan Memorial Hospital

Otho A. Fiedler, M.D.....*Preceptor in Charge*

Associate Preceptors

A. B. C. Bock, M.D.
Miles D. Cottingham, M.D.
Friedrich Eigenberger, M.D.
Walter D. Ford, M.D.
A. E. Genter, M.D.
T. J. Gunther, M.D.
H. H. Heiden, M.D.
Siegfried Kraft, M.D.
Paul B. Mason, M.D.
F. A. Nause, M.D.
Wm. H. Neumann, M.D.
Lloyd M. Simonson, M.D.
Leslie Tasche, M.D.
Otto E. Toenhart, M.D.
Carl J. Weber, M.D.
C. M. Yoran, M.D.

STATESAN

Wisconsin State Sanatorium

Harold M. Coon, M.D.....*Preceptor in Charge*

Associate Preceptors

Ralph Biehn, M.D.
Paul L. Eisele, M.D.

WAUSAU

A

St. Mary's Hospital

Joseph F. Smith, M.D.....*Preceptor in Charge*

Associate Preceptors

Verne E. Eastman, M.D.
Harold R. Fehland, M.D.
Seth M. B. Smith, M.D.
George H. Stevens, M.D.
James K. Trumbo, M.D.

B

Wausau Memorial Hospital

Merritt La Count Jones, M.D.....*Preceptor in Charge*

Associate Preceptors

Joseph M. Freeman, M.D.
David T. Jones, M.D.
Otis M. Wilson, M.D.

MILWAUKEE DIVISION EXTRA-MURAL TEACHING

The following institutions cooperate in this service:

Milwaukee County Dispensary
Milwaukee County Hospital
Milwaukee City Health Department
Milwaukee Isolation Hospital
Milwaukee Hospital
Milwaukee Children's Hospital
Welfare Division A. O. Smith Manufacturing Company
State Industrial Commission
Milwaukee Academy of Medicine
Wisconsin Anti-Tuberculosis Association

John Huston, M.D.....*Supervisor Extra-Mural Teaching*
Silas M. Evans, M.D.....*Assistant Supervisor Extra-Mural Teaching*

Preceptors

R. A. Allebach, M.D.
John L. Armbruster, M.D.
Mark J. Bach, M.D.
William J. Carson, M.D.
David Cleveland, M.D.
Roland S. Cron, M.D.
Louis Dorpat, M.D.
Frank E. Drew, M.D.
Carl W. Eberbach, M.D.
Norbert Enzer, M.D.
Curtis A. Evans, M.D.
Albert H. Lahmann, M.D.
Orville R. Lillie, M.D.
Chester W. Long, M.D.
Oscar Lotz, M.D.
Frances B. McMahon, M.D.
Henry O. McMahon, M.D.
Frederick W. Madison, M.D.
Julian Y. Malone, M.D.
H. B. Miner, M.D.
C. W. Morter, M.D.
Frances D. Murphy, M.D.

Silas M. Evans, M.D.
Max J. Fox, M.D.
John L. Garvey, M.D.
Arne C. Gorder, M.D.
Phillip Guzzetta, M.D.
John E. Haberland, M.D.
Arthur C. Hanson, M.D.
Maurice Hardgrove, M.D.
Herman Heise, M.D.
John B. Hitz, M.D.
A. A. Holbrook, M.D.
Alfred L. Kastner, M.D.
Walter M. Kearns, M.D.
James J. King, M.D.
Chester M. Kurtz, M.D.
T. S. O'Malley, M.D.
William P. O'Malley, M.D.
Lawrence J. Parrish
Andrew I. Rosenberger, M.D.
H. W. Sargeant, M.D.
Arthur A. Schaefer, M.D.
Herbert G. Schmidt, M.D.
Irwin Schulz, M.D.
Harold W. Shutter, M.D.
Eugene Smith, M.D.
A. Dwight Spooner, M.D.
Theodore L. Squier, M.D.
Frank A. Thompson, M.D.
Lester M. Wieder, M.D.

ADMISSION

All applicants for admission to the Medical School must have fulfilled the general entrance requirements of the University, either by satisfactory completion of certain prescribed work in some recognized secondary school, including graduation therefrom, or by passing the entrance examinations. See General Information bulletin for details.

ADMISSION WITH ADVANCED STANDING

First-Year Class: A student wishing to apply for admission to this class should send an official copy of his premedical credentials to the Dean of the Medical School not later than March 1 of the year in which he wishes to matriculate. If the credentials are satisfactory, an application blank will be sent to the candidate for admission, to be filled out and returned to the Dean of the Medical School.

All students entering from other institutions are required to pass a reading knowledge examination in either German or French given by the appropriate department at Wisconsin before the time of matriculation.

Second-Year Class: There is seldom a vacancy in this class and students from other institutions are not encouraged to apply for admission.

Third and Fourth-Year Classes: At the present time no applications to these classes are accepted.

MEDICAL SCHOOL CURRICULA

The university curriculum for candidates for the degree of Doctor of Medicine is divisible into three parts, premedical, preclinical and clinical. At the University of Wisconsin three years are required for the premedical work and two years each for the preclinical and the clinical.

PREMEDICAL REQUIREMENTS

The premedical part of the curriculum comprises college work required prior to matriculation in the Medical School. It may be combined with the preclinical part of the medical course thereby leading either to a Bachelor of Arts or a Bachelor of Science degree. If it extends through four years the Bachelor of Arts or the Bachelor of Science degree is usually received before matriculation in the Medical School.

Choice of Premedical Courses. The student who enters the College of Letters and Science with the intention of studying medicine arranges at the office of the Assistant

Dean of the Medical School a schedule of studies which will enable him to complete the required premedical college work within the period which he desires to devote to preparation for the medical course.

The minimum time required for the premedical work at Wisconsin is three years. If four years are spent on premedical work, the student has the choice either of broadening his course of study or of taking more advanced work in some special line. All good American medical schools now require at least three years of premedical college work, and a few require a bachelor's degree for entrance. If a student expects to take his medical course or to complete the clinical part of it elsewhere, he should keep this in mind when arranging the premedical schedule. He should likewise acquaint himself with the special premedical requirements maintained by the school of his choice.

The general regulations governing freshmen and sophomores in the College of Letters and Science apply to premedical students. A thesis is not required in the senior year, its place being taken by an equal number of credits of individual work in the second year of medicine.

PREMEDICAL CURRICULA

RECOMMENDED SEQUENCE FOR THE THREE-YEAR COURSE

LEADING TO THE DEGREE OF BACHELOR OF SCIENCE (MEDICAL SCIENCE)

FRESHMAN YEAR

First Semester	Credits	Second Semester	Credits
English 1a—Freshman English	3	English 1b—Freshman English	3
Chemistry 1a—General chemistry	5	Chemistry 1b—General chemistry	5
Mathematics	4-3	Mathematics	4-3
French 1a or German 1a	4	French 1b or German 1b	4
Physical activity requirement	0-(1)	Physical activity requirement	0-(1)
	15-16		15-16

SOPHOMORE YEAR

Chemistry 120a, 121a	4	Chemistry 120b, 121b	4
Zoology 1—Animal biology	5	Zoology 104—Comparative anatomy	5
French 10a or German 2a	3	French 10b or German 2b	3
Electives	3	Electives	3
	15		15

JUNIOR YEAR

Physics 1a or 31	5	Physics 1b or 31	5
Zoology 105—Embryology	5	Latin 1b	4
Latin 1a	4	Electives	5-6
Electives	2-3	Electives if Latin has been pursued in high school	(10-11)
Electives if Latin has been pursued in high school	(7-8)		
	15-16		14-15

RECOMMENDED SEQUENCE FOR THE THREE-YEAR COURSE

LEADING TO THE DEGREE OF BACHELOR OF ARTS

FRESHMAN YEAR

First Semester	Credits	Second Semester	Credits
English 1a—Freshman composition	3	English 1b—Freshman composition	3
Chem. 1a—General chemistry	5	Chem. 1b—Qualitative analysis	5
French 1a or German 1a	4	French 1b or German 1b	4
History or mathematics	3-4	History or mathematics	3-4
Physical activity requirement	0-(1)	Physical activity requirement	0-(1)
	15-16		15-16

SOPHOMORE YEAR

Engl. 30a, 32a, 33a or 40a—Sophomore literature	3	Engl. 30b, 32b, 33b or 40b—Sophomore literature	3
Chem. 120a, 121a—Organic chemistry	4-5	Zoology 104	5
Zoology 1—Animal biology	5	French 10b or German 2b	3
French 10a or German 2a	3	Electives	5
	15-16		15-16

JUNIOR YEAR

Physics 1a or 31	5	Physics 1b or 31	5
Foreign language	4-5	Latin 1b—Caesar	4
Latin 1a—Elementary Latin	4	Foreign language	4-5
Electives if foreign language and Latin were pursued in high school	(10)	Electives if foreign language and Latin were pursued in high school	(10)
	13-14		13-14

COURSE IN MEDICINE

LEADING TO THE DEGREE OF DOCTOR OF MEDICINE

FIRST YEAR

First Semester	Credits	Second Semester	Credits
Anatomy 110—Histology and organology	5	Anatomy 121—Gross anatomy	6
Anatomy 121—Gross anatomy	7	Anatomy 126—Neural anatomy	5
Physiological Chemistry 104	4	Physiology 105—Medical physiology	7
Physiology 105—Medical physiology	2		
	18		18

SECOND YEAR

Bact. 102—Medical bacteriology	5	Anatomy 102—Clinical laboratory diagnosis	3
Hygiene 101—Public health	2	Medicine 111—Medical diagnosis	3
*Pathology 101—General pathology	4	Pathology 101b—Special pathology	2
Pathology 101b—Special pathology	2	Pharmacology 104	4
Medicine 110—Physical diagnosis	2	Surgery 102—Surgical clinics	1
†Thesis or problem course	2-4	Surgery 103—Elements of surgery	1
		†Thesis or problem course	2-4
	18-20		15-17

*Until Christmas recess.
†A total of 4 credits required.

THIRD YEAR

Medicine 301—Third-year medicine	5	Medicine 301—Third-year medicine	5
Medicine 305—Therapeutics	1	Medicine 312—Neuropsychiatry	2
Medicine 310—Pediatrics	1	Surgery 301—Third-year surgery	4
Medicine 315—Dermatology	1	Surgery 311—Rhinology, otolaryngology	1
Surgery 301—Third-year surgery	6	Surgery 315—Orthopedics	1
Surgery 310—Ophthalmology	1	Surgery 325—Urology	1
Surgery 330—Obstetrics and gynecology	1	Surgery 330—Obstetrics and gynecology	2
Neuro-Pathology 302	1	Surgery 314—Plastic surgery	1
		Surgery 316—Physical therapy	1
		Surgery 320—Radiography and radiotherapy	1
	17		19

FOURTH YEAR

Hygiene 401—Sanitation and public health	1	Surgery 405—Applied radiology	1
Medicine 401—Internal medicine	4.5	Surgery 401—General surgery	3
Medicine 410—Pediatrics	2.5	Surgery 410—Ophthalmology	1
Medicine 412—Neuropsychiatry	3	Surgery 411—Rhinology, laryngology, otology	1
Medicine 415—Dermatology	1	Surgery 425—Urology	2
Medicine 420—Medical jurisprudence and ethics	1	Surgery 415—Orthopedic surgery	1
Surgery 406—Obstetrics and gynecology	2	Thesis	3
Surgery 416—Applied physical therapy	1	Associate quarter	12
		Milwaukee quarter	8
	16		32

MEDICAL SCIENCE MAJORS

A Major in Medical Science is authorized for students in the General Courses who pursue the regular three-year premedical sequence and meet both their premedical and special degree requirements. In their senior year such students register in the Medical School as well as in the College of Letters and Science. The work of the major consists of a minimum of 25 credits in closely related medical subjects, and according to the degree requirements selected they may qualify for the B.A. or the B.S. degree. Such students must earn at least 90 credits in Letters and Science to meet all the regular premedical requirements (8-10 credits each in general chemistry, biology, and physics, at least 4 credits in organic chemistry, one year of college Latin or its high-school equivalent, and a reading knowledge of French or German established by credits or examination) during the first three years.

The candidates for the B.A. degree must satisfy the regular requirements in foreign language, English, and history or mathematics as specified for the B.A. degree in the General Course.

The candidates for the B.S. degree must complete freshman English, a year of elementary or more advanced mathematics in college, Zoology 105, and one year of organic chemistry.

MEDICAL COURSES

Two courses are offered, a two-year course and a four-year course.

The *two-year course*, established in 1907, covers the preclinical half of a four-year medical course only and embraces the basal and intermediate groups of studies outlined

below. Combined with the three years of premedical work outlined above, this course leads to the degree of Bachelor of Science, Medical Science, at the conclusion of the first year in the Medical School. On completion of the second year in the Medical School, the student will go elsewhere to complete the clinical portion of the medical curriculum. Owing to the fact that opportunities for admission to the third year are few in most medical schools, the number of students accepted for this course is sharply limited. Selection is made on the basis of premedical scholarship. Students are not promoted to the second year until all of the required work of the first year is completed with grades of fair or better.

The *four-year course,* established in 1925, embraces the basal and intermediate groups of the two-year course and in addition two years of clinical instruction at Madison and at the associate clinical teaching centers. Students are required to obtain a bachelor's degree before being admitted to the two years of clinical instruction. Upon the successful completion of the latter, the degree of Doctor of Medicine is granted. Owing to the necessity of restricting clinical instruction at the Wisconsin General Hospital so as to make such instruction facilitate, not hamper, the care of patients, this four-year class is limited to fifty students or fewer. Selection is made on the basis of premedical scholarship. Students are not promoted from one year to the next unless the required work of the year is completed with average grades of high fairs or better in all subjects.

Transfers from the two-year to the four-year course can be made only in event vacancies occur in the latter. The selection of students to fill such vacancies will be made on the basis of preceding scholarship and character.

PRECLINICAL DIVISION

This comprises the work of the first two years of the medical course and embraces basal and intermediate groups of studies.

The work in the preclinical sciences is under the direction of specialists who devote their whole time to teaching and investigation, and who are keenly interested in medical problems and progress. In each of the departments certain courses are required of all medical students; others are elective. The required courses are designed to insure a broad basis for clinical medicine. The elective courses aid the students to gain depth of insight and special skill in some one branch, and thus become thorough as well as broad. The elective courses also offer excellent opportunities to graduates who wish to specialize in some of the medical sciences and to physicians desiring to follow the progress of these sciences to prepare for public health work, or to undertake research.

BASAL GROUP

Ordinarily, taken in the first year of a four-year course. Prerequisite for the Intermediate Group.

	Course No.	Semester	Lectures Recitations	Laboratory hours	Credits
Histology and Histogenesis	Anat. 110	I	32	112	5
Neural Anatomy	Anat. 126	II	32	112	5
Gross Anatomy and Morphogenesis	Anat. 121	yr.	32	384	13
Physiology	Phys. 105	yr.	96	96	9
Physiological Chemistry	Phys. Chem. 104	I	20	124	4
			212	828	36

INTERMEDIATE GROUP

Ordinarily taken in the second year of a four-year course. Prerequisite for the Clinical Group.

	Course No.	Semester	Lectures Recitations	Laboratory hours	Credits
Pathology	Path. 101	I, ⅓II	64	192	8
Public Health	Hyg. 101	I	16	32	2
Bacteriology	Bact. 102	I	48	96	5
Pharmacology	Pharm. 104	II	64	48	4
Physical Diagnosis	Med. 110	I	32	64	3
Clinical Laboratory Diagnosis	Med. 102	⅔II	30	90	3
Medical Diagnosis	Med. 111	II	16	32	2
Surgical Clinics	Surg. 102	II		64	1
Surgery Elements	Surg. 103	II	16		1
			286	618	29

CLINICAL DIVISION

For promotion to the work of this division a student must complete the required premedical and preclinical part of the curriculum, outlined above, with good grades and must have a degree of Bachelor of Arts or Bachelor of Science. The courses of this division are divided into two parts, an introductory clinical group and a preceptorial group.

The introductory clinical group of studies of the third year of the medical course is devoted to a consideration of the broader aspects of clinical medicine and of the major medical specialties and to practical work in care of patients in the wards and outpatient departments of the Wisconsin General Hospital. This work is under the general direction of specialists who devote themselves to care of patients, teaching and research in the hospital. The teaching is supplemented by that of part-time men in some of the major specialties. Opportunity is offered for advanced work in the medical sciences as well as for training in routine procedures.

The preceptorial group of studies of the fourth year of the medical course is designed to offer individual training in the art of medicine. Each student is assigned as an apprentice to a series of preceptors in medicine, surgery, and the major specialties. The preceptors are selected on the basis of ability, experience, desire to teach, and clinical facilities available.

INTRODUCTORY CLINICAL GROUP

Ordinarily taken in the third year of a four-year medical course. Prerequisite for Preceptorial Group.

	Course No.	Semester	Lectures Recitations	Laboratory hours	Credits
Medical Division					
General Medicine	Med. 301				10
a. Lectures		yr	42		
b. Conferences		yr	40		
c. Ward work		yr		70	
d. Clinics		yr		32	
e. Clin. Path. Conference	Path. 301	yr		32	
f. Neuro-path.	Path. 302	I	32		1
g. Therapeutic Conference	Med. 305	yr	32		1
Dermatology	Med. 315				1
a. Lectures		I	16		
b. Clinics		I		16	
c. Ward work		yr		10	
Pediatrics	Med. 310				1
a. Lectures		I	18		
b. Conferences		I	18		
c. Ward work		yr		40	
d. Clinics		yr		16	

Neuropsychiatry ---------- N. P. 312					2
a. Lectures ----------	II	20			
b. Conferences ----------	II	20			
c. Ward work ----------	yr		40		
d. Clinics ----------	yr		16		
Surgical Division					
General Surgery ---------- Surg. 301					10
a. Lectures ----------	yr	32			
b. Conferences ----------	yr	14			
c. Ward work ----------	yr		60		
d. Clinics ----------	yr		48		
e. Surg. Path. Conference ----------	yr		32		
f. Experimental Surg. and Anes. ----------	I		36		
g. Anesthesia and Resuscitation ---------- Anes. 301	II	16			
Ophthalmology ---------- Surg. 310					1
a. Lectures ----------	I	16			
b. Ward work ----------	yr		20		
Otolaryngology and Rhinology ---------- Surg. 311					1
a. Lectures ----------	II	16			
Orthopedic ---------- Surg. 311					1
a. Lectures ----------	II	16			
b. Ward work ----------	yr		20		
c. Fractures ----------	II	5			
Plastic Surgery ---------- Surg. 314					1
a. Lectures ----------	II	16			
Urology ---------- Surg. 325					1
a. Lectures ----------	II	20			
b. Ward work ----------	yr		20		
Obstetrics and Gynecology ---------- O & G 330					3
a. Lectures ----------	yr	24			
b. Conferences ----------	yr	24			
c. Demonstrations ----------	yr		48		
d. Ward work ----------	yr		40		
Radiology and Physical Therapy					
Radiology ---------- Rad. 320	II	16			
a. Lectures ----------					1
b. Laboratory ----------	II		16		
Physical Therapy ---------- Phy. Th. 316					1
a. Lectures ----------	II	8			
b. Laboratory ----------	II		8		
					—
Total ----------					36

*The various subjects listed above are given as correlated parts of what constitutes essentially a year's course in the basal elements of clinical medicine.

PRECEPTORIAL GROUP

Ordinarily taken in the fourth year of a four-year medical course. Required for the degree of Doctor of Medicine.

Instruction based on the preceptor system requires at least 48 weeks for completion. The work of the year is divided into four periods of 12 weeks each. The class is divided into four sections and each section is assigned for a given period to one of four fields of work and during the year has work in each field. At a given period each of the four sections is working in a different field of work. At the end of each of the first three periods each section is shifted from one field of work to another. Comprehensive examinations are given at the close of the final period. There is no formal didactic work during the year, although there are numerous informal sectional conferences.

The work of the four fields, known as quarters, and designated medical, surgical, associate, and Milwaukee-Chicago is arranged in the following manner:

Medical Quarter: Twelve weeks in internal medicine and the medical specialties: pediatrics, neurospychiatry, dermatology, and preventive medicine. Eight weeks are

spent at the Wisconsin General Hospital, three at the Mendota State Hospital, and one in public health work, state and city. Students are assigned to members of the hospital staff who serve as preceptors. The work of the quarter is as follows:

Medicine	Med. 401, full time 3 weeks, one-half time 3 weeks	4½ cr.
Dermatology	Med. 415, one-half time 3 weeks	1 cr.
Neuropsychiatry	N.P. 412, full time 3 weeks	3 cr.
Pediatrics	Med. 410, one-half time 6 weeks	2½ cr.
Public Health	Hyg. 401, full time 1 week	1 cr.
	Total	12 cr.

Surgical Quarter: Twelve weeks in general and orthopedic surgery: eye, ear, nose and throat work; obstetrics and gynecology; urology; physical therapy and radiology taken at the Wisconsin General Hospital under preceptors selected from the surgical faculty. The work is arranged as follows:

General Surgery (incl. Anesthesia)	Surg. 401, full time, 3 weeks	3 cr.
Obstetrics and Gynecology	O. and G. 406, ¾ time, 3 weeks	2 cr.
Ophthalmology	Surg. 410, ¼ time, 3 weeks	1 cr.
Otolaryngology and Rhinology	Surg. 411, ¼ time, 3 weeks	1 cr.
Orthopedic Surgery	Surg. 415, ½ time, 3 weeks	1 cr.
Physical Therapy	Phy. Th. 416, ¼ time, 3 weeks	1 cr.
Radiology	Rad. 405, 1/7 time, 3 weeks	1 cr.
Urology	Surg. 425, 6/7 time, 3 weeks	2 cr.
	Total	12 cr.

Associate Quarter: An extra-mural quarter extending through twelve weeks at some teaching center organized for preceptorial work. These centers are selected on the basis of pedagogical, hospital, laboratory, and library facilities. See list of centers and preceptors on page 247. Under the supervision of the preceptor and his associate and assistant preceptors, the student assists in history taking, making physical examinations, performing laboratory work, looking up literature on special cases, in administering treatment, and in other ways beneficial to his training. He is assigned reading covering the broader aspects of the field in which he is working. 12 cr.

The chief purpose of this quarter is to acquaint the student with the conditions of medical practice in urban and rural districts.

Milwaukee-Chicago Quarter: The chief purpose of this quarter is to acquaint the student with the social problems involved in medical practice in large cities. Six weeks are spent in Milwaukee, four weeks in Chicago and two weeks at the Wisconsin State Sanatorium for Tuberbulosis at Statesan, Wisconsin. In Milwaukee small sub-groups are assigned for work at the out-patient departments of the Milwaukee County Dispensary for four weeks and at the Milwaukee Isolation Hospital for two weeks where they work under the direction of members of the staff who act as preceptors. The work is organized under the general direction of a supervisor of extra-mural teaching. Group seminars are held at 4 p.m. daily except Saturday. In Chicago each student spends four weeks on obstetrical service under the auspices of the Chicago Lying-In Hospital. The period of two weeks spent in the study of tuberculosis at Statesan is in residence and under the supervision of the staff of that institution. 8 cr.

In addition to the work of the four quarters outlined above each student must satisfy the following requirement:

(1) Medical students in residence in Madison during the periods when physical examinations are made of all students entering the University are assigned duties for one week in connection with these examinations.

(2) Assigned reading in medical jurisprudence and in medical ethics upon which an examination is given at the end of the year. Med. 420, 1 cr.

(3) An acceptable thesis upon an assigned subject, 3 credits.

(4) At the end of the year each student is given an individual comprehensive oral examination by a special committee composed of members of the clinical and preclinical staff.

DEGREES

BACHELOR OF ARTS. Conferred, on recommendation of the College of Letters and Science, upon students who elect the first year of the medical course during the senior year in that college and fulfill the usual requirements for the degree.

BACHELOR OF SCIENCE (MEDICAL SCIENCE) Conferred, on recommendation of the College of Letters and Science, upon students who complete the required premedical and preclinical courses outlined above.

MASTER OF SCIENCE. This degree is conferred, on recommendation of the Graduate School, upon college graduates, matriculated in the Medical School, provided they fulfill the following conditions: (1) They must register in the Graduate School as well as in the Medical School. (2) At the time of application they must present evidence of having completed such preliminary work in one of the basal sciences of medicine as will entitle them to take advanced work in this science beyond that required in the regular medical curriculum. (3) During a period of at least one academic year advanced work of this character must be pursued under the direction of an instructor of the department in which the study is taken and the results must be presented in the form of a thesis. (4) A special oral examination must be passed.

DOCTOR OF PHILOSOPHY. Conferred, on recommendation of the Graduate School, upon candidates who exhibit general proficiency and power of original research in some field of knowledge. For the requirements of this degree the Bulletin of the Graduate School should be consulted.

DOCTOR OF MEDICINE. Conferred, on recommendation of the Faculty of the Medical School, upon candidates who fulfill the medical school curriculum as outlined on pages 253-254.

GRADUATE AND POST-GRADUATE INSTRUCTION

Graduate work may be defined as advanced work in a major department leading to the degree of Master of Science or of Doctor of Philosophy in that department. Each department of the Medical School offers such work which is carried out under the auspices of the Graduate School of the University. The regulations relating to work for the higher degrees are published in the bulletins of the Graduate School. Questions relating to such degrees should be addressed to the Dean of the Graduate School.

Post-graduate work may be defined as study carried on after graduation with a view to increase one's knowledge or skill but without aiming at that special mastery in a given field of knowledge which would entitle one to a higher degree. Post-graduate courses offered by the University are of two kinds, intra-mural and extra-mural.

Intra-mural post-graduate clinical courses are those offered by the Medical School at the Wisconsin General Hospital.

Extra-mural post-graduate courses are designed to provide physicians residing in a given locality with practical demonstrations of the newer methods of diagnosing and treating disease. Clinics are held at a hospital conveniently located, illustrated lectures are given and opportunity is offered for consultation with specialists. Arrangements

for these clinics and lectures are made by cooperation between the local physicians under whose auspices the clinics and lectures are held, and the Extension Division of the University.

Other aids for post-graduate study furnished members of the medical profession in Wisconsin by the University include:

1. Extension Medical Library Service. Books, periodicals, and reprints are sent by mail to physicians in the State and references and bibliographies are prepared upon request.

2. Speakers are furnished for medical meetings.

3. Models, charts, photographs, lantern slides, and moving picture films, relating to medicine and hygiene, are kept in considerable numbers by the Extension Division and are available to physicians preparing papers for presentation before medical societies or for popular education in medicine and hygiene.

4. The State Laboratory of Hygiene (the laboratory of the State Board of Health) and the State Psychiatric Institute are located at the University and are closely affiliated with the Medical School. These institutions not only furnish direct laboratory aid to physicians but also do much to extend practical post-graduate instruction.

SCIENTIFIC INVESTIGATION

It is desired that the facilities of the various laboratories of the Medical School be utilized to the greatest advantage in the investigation of the causes and prevention of diseases in both man and animals. The laboratories of the Medical School are freely open to those engaged in such investigations and, so far as possible, aid will be given in carrying out investigations of this character either at the University or elsewhere in the State.

LABORATORY AND HOSPITAL FACILITIES

The teaching of gross anatomy, histology, embryology, and neurology is at present conducted in Science Hall. The teaching of physiology, physiological chemistry, pharmacology, bacteriology, pathology, hygiene, radiology, and physical therapy is conducted in the Service Memorial Institutes Building erected in memory of those who served in the World War.

The major portion of the fundamental teaching of the clinical branches is conducted in the Wisconsin General Hospital. This hospital has a capacity of over 350 beds, with facilities for medicine, surgery, and the major specialties. Affiliated with it under university control are the Student Infirmary, with a capacity of 125 beds; the Bradley Memorial Hospital, with a capacity of 40 beds used at present for early neuropsychiatric patients and for the Wisconsin Psychiatric Institute; and the Orthopedic Hospital for Children with a capacity of 125 beds.

During the fourth year of the medical course part of the teaching is done at the Wisconsin General Hospital and part under the direction of preceptors at various medical centers throughout the State and in Chicago. A large number of public and private institutions cooperate in this work.

The State and City Boards of Health cooperate in the practical instruction offered our students in public health work.

DEPARTMENTS OF INSTRUCTION

For a description of the courses in botany, zoology, chemistry, physics, psychology and language, see departmental announcements in the Bulletin of the College of Letters and Science. For courses in the School of Nursing, see the special bulletin of that school.

Abbreviations used in the announcement of courses:

Yr—a continuous course extending through two semesters.
I—course given during the first semester.
II—course given during the second semester.
I, II—semester course given each semester.
Cr—number of credit hours per semester.
*—credits to be arranged.

Courses numbered from 1 through 100 are open for credit to undergraduates only; from 101 to 199 to both undergraduates and graduates; over 200 to graduates only, or very exceptionally to advanced undergraduates; 300-399, third-year medical courses; 400-499, fourth-year medical courses.

ANATOMY

Professors Bast, Sullivan, *chairman*; Associate Professors Geist, Mortensen, Mossman; Instructors Faber, Maloof, Robbins.

There is offered a group of courses planned for a comprehensive survey of the gross, microscopic and developmental anatomy of mammals, with especial reference to man. Opportunities are offered for advanced work and research. The laboratory is thoroughly equipped with apparatus, models, books, and materials.

36. Human Anatomy. II; 6 cr. For students of physical education. An opportunity to dissect is offered. Prerequisite: Zoology 3. Lab. fee $10.00. Mrs. Eyster.

39. Physical Education Anatomy. I; 4 cr. Lectures and laboratory work for students of physical education. Prerequisite: Zoology 1. Lab. fee $5.00. Dr. Maloof.

110. Histology and Organology. I; 5 cr. The study of the tissues, followed by a study of the structure of the mammalian organs. Histogenesis and some organogenesis are included. Prerequisites: Junior standing, Zoology 1. Lab. fee $15.00*. Dr. Bast, Dr. Geist, and staff.

121. Human Anatomy. I, 7 cr.; II, 6 cr. A thorough course in the dissection of the human body and in descriptive human anatomy. Organogenesis is in part included. Prerequisites: Junior standing, Zoology 1. Lab. fee $17.50 per semester. Dr. Sullivan, Dr. Mortensen, Dr. Mossman.

122. Applied Anatomy. Yr; 2-4 cr. This course includes a modified dissection of the entire body. The Department of Surgery takes joint responsibility for the work. Prerequisite: Anatomy 121. Lab. fee $5.00. Dr. Sullivan, Dr. Schmidt.

126. The Anatomy of the Nervous System. II; 5 cr. Dissection of the human brain and study of the microscopic anatomy of the central nervous system and sense organs. Neurogenesis included. Prerequisite: Anatomy 110. Lab. fee $10.00*. Dr. Geist, Dr. Bast, and staff.

200. Research. *cr. The facilities of the department, including supervision by staff members, are open to students and other qualified persons. The fee is on the basis of materials used.

*An additional fee of $5.00 is charged students who do not have their own microscopes.

MEDICAL BACTERIOLOGY

PROFESSOR CLARK, *chairman;* ASSISTANT PROFESSORS HOLFORD, SEASTONE.

4. BACTERIOLOGY AND HYGIENE. II; 3 cr. Lab. fee $6.00. Microscope fee $2.50. Open only to students in the course in nursing. Dr. Seastone.

102. MEDICAL BACTERIOLOGY. I; 5 cr. Prerequisites: Second-year standing in Medical School; or Physiological Chemistry 104 and 1 year Biology; or Major in Agricultural Bacteriology. Lab. fee $17.50*. Dr. Clark and staff.

104. IMMUNOLOGY. II; 3-4 cr. Prerequisite: Medical Bacteriology 102. Lab. fee $8.00 to $10.00. Dr. Holford.

106. ADVANCED BACTERIOLOGY. I, II; *cr. Filterable viruses. Lab. fee $3.00 per cr. Dr. Clark.

108. BACTERIOLOGY SEMINARY. Yr; 1 cr. Dr. Clark.

200. GRADUATE RESEARCH. Yr; *cr. Lab. fee $5.00. Staff.

HYGIENE

In conjunction with the staffs of the State Laboratory of Hygiene, the Wisconsin Psychiatric Institute, the State Board of Health, and the Boards of Health of the cities of Milwaukee and Madison, courses in hygiene are offered by members of the faculty of the Medical School under the general supervision of Dr. Stovall.

101. PUBLIC HEALTH. I; 2 cr. Given in conjunction with Bacteriology 102. Prerequisite: Second-year medical standing. Dr. Clark, Dr. Stovall.

401. PRACTICAL FIELD WORK. I, II; 1 cr. Prerequisite: Fourth-year medical standing Dr. Stovall.

MEDICAL DIVISION

GENERAL MEDICINE

PROFESSORS EVANS, *chairman,* MIDDLETON, SEVRINGHAUS, VAN VALZAH (on leave 1940-41); ASSOCIATE PROFESSORS CARNS, MEYER, PUESTOW; ASSISTANT PROFESSORS KURTZ, MIDELFART, OATWAY, POHLE; CLINICAL PROFESSORS COLE, MOWRY; ASSOCIATE CLINICAL PROFESSORS BENTLEY, STIEHM, WESTON; ASSISTANT CLINICAL PROFESSOR FOSTER; INSTRUCTORS H. P. DAVIS, KIMBALL, SHAPIRO; RESEARCH ASSOCIATES GORDON, F. J. POHLE; CLINICAL INSTRUCTORS AND ASSOCIATES BONER, KAY, SPRAGUE, THOMAS; SUPERVISOR OF EXTRA-MURAL TEACHING HUSTON; ASSISTANT SUPERVISOR OF EXTRA-MURAL TEACHING EVANS; LECTURERS CHASE, REINEKING.

110. PHYSICAL DIAGNOSIS. I; 2 cr. Normal physical diagnosis. Prerequisites: Anatomy 110, 121, 126; Physiology 105. Lab. fee $5.00. Dr. Carns.

111. MEDICAL DIAGNOSIS. II; 3 cr. Pathological clinical diagnosis. Prerequisites: One semester each of Pathology 101, Bacteriology 102, Medicine 110. Lab. fee $5.00. Dr. Carns.

118. PHYSICAL EXAMINATIONS. II; 2 cr. For students in physical education. Prerequisites: Anatomy 39 or 120; Physiology 115. Dr. Foster.

200. ADVANCED WORK AND RESEARCH. *cr.

301. THIRD-YEAR MEDICINE. Yr; 11 cr. Lectures, clinics, conferences, and ward work. Prerequisites: Medicine 102, 110, 111; Surgery 102, 103. Lab. fee $27.50. Dr. Evans, Dr. Middleton, and staff.

302. ORAL HYGIENE. II. Included in 301. Dr. Chase.

305. THERAPEUTICS. I and II; 1 cr. Prerequisites: Medicine 102, 111. Dr. Evans and staff.

*An additional fee of $5.00 is charged students who do not have their own microscopes.

206. Advanced Work and Research in Therapeutics. *cr. Given in conjunction with Department of Pharmacology.

401. Fourth-Year Medicine. I or II; 4½ cr. Prerequisites: Medicine 301; Surgery 301.

CLINICAL PATHOLOGY

Professor Stovall; Instructors Birge, Jaeschke, Thorngate.

102. Clinical Laboratory Diagnosis. II; 3 cr. Prerequisites: Bacteriology 102, Pathology 101; Physiological Chemistry 104. Lab. fee $10.00. Dr. Stovall and staff.

DERMATOLOGY

Professor O. H. Foerster; Associate Professor McIntosh; Assistant Professor H. R. Foerster; Research Associate Cooper.

200. Advanced Work and Research. *cr. Lab. fee $5.00.

315. Dermatology. I; 1 cr. Prerequisites: Medicine 102, 111.

415. Fourth-Year Dermatology. I, II; 1 cr. Prerequisite: Medicine 315. Through the courtesy of Dr. O. H. Foerster and Dr. H. R. Foerster of Milwaukee part of this course is given in Milwaukee. Through the courtesy of the directors of the Milwaukee County Dispensary, the work is in part carried on there.

Medical Jurisprudence and Medical Ethics

420. Medical Jurisprudence and Medical Ethics. 1 cr. Assigned reading and examination.

PEDIATRICS

Professor Gonce; Associate Professor Tenney; Assistant Professor McDonough

200. Research. *cr. Lab. fee $5.00.

310. Pediatrics. I; 1 cr. Prerequisites: Medicine 102, 111.

410. Fourth-Year Pediatrics. I or II; 2½ cr. Prerequisite: Medicine 310.

NEUROPSYCHIATRY

Professors Lorenz, *chairman,* Bleckwenn, Reese; Associate Professors Masten, Washburne; Assistant Professor Musser; Instructors Macht, Meister, Pessin; Clinical Associates M. Green, M. Nesbit, Sauthoff, Rosenberg.

112. Problems in Neuropsychiatry. *cr. Dr. Lorenz and staff.

200. Research. *cr.

312. Third-Year Neuropsychiatry. II; 2 cr. Prerequisites: One semester of Medicine 301 and Surgery 301. Dr. Lorenz and staff.

412. Fourth-Year Neuropsychiatry. I or II; 3 cr. Prerequisite: N.P. 312.

PATHOLOGY

Professor Bunting, *chairman;* Assistant Professors Burke, McCarter; Instructor Poor.

101. Human Pathology. Yr; 8 cr. The principles of human pathology and the essentials of pathological anatomy taught by lecture, laboratory exercises and conference. The course is arranged as follows:

(a) General Pathology. Until the Christmas recess; I, 4 cr. Prerequisites: Anatomy 110, 126. Lab. fee $20.00.

(b) Special Pathology. From the Christmas recess until the end of March; I, 2 cr.; II, 2 cr. Prerequisite: Satisfactory completion of general pathology. Lab. fee II, $7.50*. Dr. Bunting and staff.

121. MEDICAL HISTORY. II; 2 cr. Joint course—Pathology and Physiology. 16 lectures and 8 seminars, given biennially. Enrollment limited to second-year medical students and graduate students. Drs. Bunting and Meek.

200. ADVANCED PATHOLOGY. I, II; *cr. Lab fee $5.00. Dr. Bunting.

301. CLINICAL PATHOLOGY CONFERENCES. Yr. Given as part of Medicine 301. Dr. Bunting and members of medical and surgical staffs.

302. NEUROPSYCHIATRY. I. Lab. fee $5.00. Dr. McCarter.

GROSS PATHOLOGY. II. For third-year medical students. Dr. Bunting and staff.

PHARMACOLOGY AND TOXICOLOGY

PROFESSOR TATUM, *chairman;* ASSOCIATE PROFESSOR SEEVERS; ASSISTANT PROFESSOR OF TOXICOLOGY KOZELKA.

101. TOXICOLOGY. II; 1 cr. Diagnosis and treatment of poisoning; technique of obtaining autopsy material for medicolegal purposes. Lectures only. Prerequisites: Physiology 105, Physiological Chemistry 104. Dr. Kozelka.

104. PHARMACOLOGY. II; 4 cr. Lectures, laboratory and conferences on the chemistry, the pharmacological and toxicological action, and the therapeutic uses of the chief medicinal drugs. Practice in prescription writing. Prerequisites: Physiology 105, Physiological Chemistry 104. Lab. fee $17.00. Dr. Tatum, Dr. Severs.

120. JOURNAL CLUB. Yr; 1 cr. A meeting of the Journal Club held weekly. Advanced students expected to report from time to time upon current papers dealing with pharmacology and toxicology.

200. RESEARCH. The laboratory is available to qualified students. Lab. fee $5.00.

222. SEMINAR IN PHYSIOLOGY, PHARMACOLOGY, AND PHYSIOLOGICAL CHEMISTRY. Yr; 1 cr.

PHYSIOLOGICAL CHEMISTRY

PROFESSOR BRADLEY, *chairman;* ASSOCIATE PROFESSOR WITZEMANN; INSTRUCTOR GORDON

104. PHYSIOLOGICAL CHEMISTRY. I; 4 cr. Lectures, conferences, and laboratory work. Required for first-year medical students and open to others as an elective. Prerequisites: Chemistry 1 and 20, or 120, Physics 1, Zoology 1. Lab. fee $15.00; deposit $5.00. Dr. Bradley, Dr. Witzemann.

114. PHYSIOLOGICAL CHEMISTRY. I; 3 cr. Lectures, conferences, and laboratory work. Required of juniors in physical education and open to others as an elective. Prerequisites: Chemistry 1, Physics 1, Zoology 1. Lab. fee $7.00; deposit $5.00. Dr. Gordon.

117. ADVANCED PHYSIOLOGICAL CHEMISTRY AND RESEARCH. II; *cr. Lab. fee $2.50 per cr.; deposit $5.00. Dr. Bradley, Dr. Witzemann.

120. JOURNAL CLUB. Yr; 1 cr. Dr. Bradley.

200. RESEARCH. Lab. fee $5.00.

222. SEMINAR IN PHYSIOLOGY, PHARMACOLOGY, AND PHYSIOLOGICAL CHEMISTRY. Yr; 1 cr.

*An additional fee of $5.00 is charged students who do not have their own microscopes.

PHYSIOLOGY

PROFESSORS MEEK, *chairman,* EYSTER; ASSOCIATE PROFESSORS HELLEBRANDT, HERRIN; INSTRUCTORS ALLEN, BEYER, ORTH, STALEY, STUTZMAN.

1. ELEMENTS OF HUMAN PHYSIOLOGY. I; 4 cr. Lectures, quizzes and demonstrations giving a general knowledge of the structure and functions of the human body. Especially adapted to teachers. Prerequisite: A course in chemistry. Lab. fee $3.00. Dr. Meek.

3. ANIMAL PHYSIOLOGY. II; 4 cr. Especially designed for students in agriculture, but open to others. Lab. fee $3.00. Dr. Herrin and assistants.

4. PHYSIOLOGY. I; 4 cr. Lab. fee $3.00. Open only to students in the course in nursing. Dr. Herrin.

17. SURVEY OF PHYSIOLOGY: FUNCTIONS OF THE HUMAN BODY. I; 4 cr. Elementary survey course intended for B.A. General Course students. Open to freshmen. Chemistry a desirable prerequisite. Lab. fee $3.00. Dr. Meek.

105. MEDICAL PHYSIOLOGY. I, 2 cr.; II, 7 cr. Lectures, recitations, demonstrations and laboratory. Required of first-year medical students and open to others as an elective. Prerequisites: Anatomy 110, 121 (comparative or human anatomy), 126; Physiological Chemistry 104. Lab. fee $17.00. Dr. Meek, Dr. Eyster, Dr. Herrin.

115. PHYSIOLOGY. I; 5 cr. Lectures, recitations, demonstrations, and laboratory. Required of juniors in physical education for women and open to others as an elective. Prerequisites: Comparative Anatomy, Physiological Chemistry. Lab. fee $13.00. Dr. Hellebrandt.

116. PHYSIOLOGY OF EXERCISE. II; 3 cr. Prerequisite: Physiology 115. Lab. fee $6.00. Dr. Hellebrandt.

117. PROBLEMS IN APPLIED PHYSIOLOGY. II; 2 cr. Prerequisites: Physiology 115, 116. Lab. fee $5.00. Dr. Hellebrandt.

120. JOURNAL CLUB. Yr; 1 cr. Reports of recent physiological and biochemical literature. Dr. Meek.

121. MEDICAL HISTORY. II; 2 cr. Joint course—Pathology and Physiology. Consists of 16 lectures and 8 seminars, given biennially. Enrollment limited to second-year medical students and graduate students. Drs. Meek and Bunting.

122. BIO-MATHEMATICS. II; 2 cr. Application of mathematics to biology. For sophomore medical or graduate students who have had elementary training in mathematics. Dr. Eyster.

200. ADVANCED PHYSIOLOGY AND RESEARCH. Yr; *cr. Lab. fee $5.00. Dr. Eyster, Dr. Meek, Dr. Hellebrandt, Dr. Herrin.

222. SEMINAR IN PHYSIOLOGY, PHARMACOLOGY, AND PHYSIOLOGICAL CHEMISTRY. Yr; 1 cr.

SURGICAL DIVISION

GENERAL SURGERY

PROFESSOR SCHMIDT, *chairman;* ASSOCIATE PROFESSOR GALE; ASSISTANT PROFESSOR LEMMER; INSTRUCTOR CURRERI; ASSISTANT FOCKE.

102. SURGICAL CLINICS. II; 1 cr. Prerequisites: Anatomy 121, Pathology 101, I; Physiology 105.

103. ELEMENTS OF SURGERY. II; 1 cr. Prerequisites: Anatomy 121, Pathology 101, I; Bacteriology 102, Physiology 105. Dr. Schmidt.

200. ADVANCED WORK AND RESEARCH. Yr; *cr.

301. THIRD-YEAR SURGERY. I, 6 cr.; II, 4 cr. Lectures, conferences, ward work,

clinics, surgical pathological conferences, experimental surgery. Prerequisites: Medicine 110, 111; Surgery 102, 103. Lab. fee $27.50. Dr. Schmidt, Dr. Gale, Dr. Waters, and staff.

401. Fourth-Year Surgery. I, II; 3 cr. Prerequisites: Medicine 301, Surgery 301.

ANESTHESIA

Professor Waters; Instructor Slocum.

200. Advanced Work and Research. Yr; *cr.

301. In Conjunction with Third-Year Surgery. I, Anesthesia and resuscitation in animals, Dr. Waters. II, Principles of anesthesia as applied to man, Dr. Waters.

401. In Conjunction with Fourth-Year Surgery. Practical experience in pre-operative, operative and post-operative work.

OPHTHALMOLOGY

Professor Davis; Associate Professor Neff; Clinical Associates Duehr, Kundert

200. Advanced Work and Research. Yr; *cr. Dr. Davis and staff.

310. Third-Year Ophthalmology. I; 1 cr. Prerequisites: Medicine 110, 111, Surgery 102, 103. Lab. fee $2.50. Dr. Davis and staff.

410. Fourth-Year Ophthalmology. I, II; 1 cr. Prerequisites: Surgery 310, 311.

OTOLARYNGOLOGY AND RHINOLOGY

Professor W. Nesbit; Clinical Associate M. Nesbit.

200. Advanced Work and Research. Yr; *cr. Nesbit and staff.

311. Third-Year Otolaryngology and Rhinology. I; 1 cr. Prerequisites: Medicine 110, 111; Surgery 102, 103. Lab. fee $2.50. Dr. Nesbit.

411. Fourth-Year Otolaryngology and Rhinology. I, II; 1 cr. Prerequisites: Surgery 310, 311.

ORTHOPEDIC SURGERY

Professor Burns; Associate Professor Schumm; Assistant Professor Wirka.

200. Advanced Work and Research. Yr; *cr.

315. Third-Year Orthopedics. II; 1 cr. Prerequisites: Medicine 301, I; Surgery 301, I.

415. Fourth-Year Orthopedics. I, II; 1 cr. Prerequisite: Orthopedics 315.

ORAL AND PLASTIC SURGERY

Emeritus Professor Brown, *Consultant;* Professor Hyslop; Instructors Dollard, Westover.

200. Advanced Work and Research. Yr; *cr.

314. Plastic Surgery. II; 1 cr. Prerequisites: Medicine 301, I; Surgery 301, I.

UROLOGY

Professor Sisk; Associate Professor Wear.

200. Advanced Work and Research. Yr; *cr.

325. Third-Year Urology. II; 1 cr. Prerequisites: Medicine 301, I; Surgery 301, I.

425. Fourth-Year Urology. I and II; 2 cr. Prerequisite: Urology 325.

OBSTETRICS AND GYNECOLOGY

PROFESSOR HARRIS, *chairman;* ASSOCIATE PROFESSOR CAMPBELL; ASSISTANT CLINICAL PROFESSOR HARPER; ASSISTANT PROFESSOR THORNTON.

200. ADVANCED WORK AND RESEARCH. *cr. Lab. fee $5.00.

330. OBSTETRICS AND GYNECOLOGY. I, 1 cr.; II, 2 cr. Prerequisites: Medicine 301, I; Surgery 301, I. Lab. fee $7.50. Dr. Harris and staff.

406. FOURTH-YEAR OBSTETRICS AND GYNECOLOGY. I; 2 cr. Prerequisite: O. and G. 330. This course is supplemented by four weeks of clinical instruction in Chicago through the courtesy of the Directors of the Chicago Lying-In Hospital, The Maternity Center, Dr. J. B. DeLee and Dr. F. L. Adair.

RADIOLOGY AND PHYSICAL THERAPY

EMERITUS PROFESSOR ELSOM; PROFESSOR POHLE, *chairman;* ASSOCIATE PROFESSOR PAUL; ASSISTANT PROFESSOR BENNETT; INSTRUCTORS LEWIS, SCHLAAK; LECTURER ELLIS.

200. GRADUATE WORK AND RESEARCH. Yr; *cr. Dr. Pohle.

222. SEMINAR IN RADIOLOGY AND PHYSICAL THERAPY. Yr; 1 cr. Dr. Pohle and staff.

316. PHYSICAL THERAPY. II; 1 cr. In this course the fundamentals of mechano-, light-, electro-, and hydro-therapy and their clinical indications are considered. Prerequisites: Medicine 301, I; Surgery 301, I.

320. RADIOGRAPHY AND RADIOTHERAPY. II; 1 cr. Lectures and demonstrations to third-year students. Prerequisites: Medicine 301, I; Surgery 301, I. Drs. Pohle and Paul.

405. APPLIED RADIOLOGY. I, II; 1 cr. Interpretation of roentgenograms, and clinics in X-ray and radium therapy. Prerequisite: Surgery 320. Drs. Pohle, Ellis and Paul.

416. APPLIED PHYSICAL THERAPY. I, II; 1 cr. Prerequisite: Surgery 316.

CANCER RESEARCH

RESEARCH FELLOWS RUSCH, POTTER; RESEARCH ASSOCIATES MOHS, PARDINAS; ORGANIC CHEMIST WASLEY.

JONATHAN BOWMAN MEMORIAL FUND. By the terms of the will of the late Miss Jennie Bowman of Wisconsin Dells, Wisconsin, a sum of about $400,000 was bequeathed to the University of Wisconsin. This bequest was designated the Jonathan Bowman Memorial Fund and its income was specifically allocated to medical and surgical research in the study of cancer.

MCARDLE MEMORIAL LABORATORY. The completion of the McArdle Memorial Laboratory this year through the generous bequest of Mr. Michael W. McArdle and with the support of Federal funds, has afforded splendid physical facilities for cancer research.

SCHOLARSHIPS

The Wisconsin Alumni Research Foundation has provided four research fellowships open to those who have completed the first two years of medicine. These fellowships will pay $600.00 and require enrollment in the graduate school. The purpose of the fellowships is to offer opportunity to a limited number of medical students to spend one year in some scientific department on purely research work. There is no desire to dissuade these students from securing a M.D. degree. It is believed, however, that they will ultimately profit by having a greater breadth of view and by having had experience in research techniques. The fellows may choose their field of work which may be in any one of the preclinical departments or in a field closely associated with medicine such as nutrition or cancer work. The selection will be made by the Graduate Fellowship Committee after conference with the Medical School.

CORA RODERMOND EVANS LOAN FUND. Mrs. Evans bequeathed to the University the sum of five thousand dollars, the income of which is available as a loan fund to students in the Medical School. The Board of Regents has adopted the following rules relative to the use of this fund:

(1) that no loans be made for a period of more than a year.

(2) that interest be charged at the rate of 5% from date of note until paid.

(3) that loans be made upon recommendation of the Dean of the Medical School.

WILLIAM SNOW MILLER LECTURESHIP. The Alpha Pi Chapter of the Phi Beta Pi Fraternity has established an annual lectureship in honor of Professor William Snow Miller.

ANATOMY PRIZE. The Alpha Psi Chapter of the Phi Delta Epsilon Fraternity has established an annual prize of $25.00 to be awarded at the beginning of the second year to the student who is judged by the staff of the Department of Anatomy to have done the best work in gross anatomy during the first year of the course.

COURSE FOR PHYSICAL THERAPY TECHNICIANS

The course for physical therapy technicians has been approved by the Council on Medical Education and Hospitals of the American Medical Association. Its duration is usually one year but not less than nine months except in cases where credit is granted for work done in another acceptable institution.

ADMISSION. Candidates for admission must either have graduated from an accredited school of nursing or an accredited school of physical education.

CURRICULUM. The curriculum includes anatomy, clinical practice, electro-therapy, ethics and administration, hydrotherapy, massage, pathology, physiology, principles of physical therapy, psychology, therapeutic exercise, and electives.

CERTIFICATE. A certificate is issued by the Medical School at the end of the course to those who have successfully fulfilled all of the requirements including an extensive written, oral and practical final examination.

MASTER OF SCIENCE DEGREE IN PHYSICAL THERAPY

Physical therapy technicians who hold a certificate in physical therapy of one of the schools accredited by the American Medical Association and who have worked for three years as physical therapy technicians under medical supervision from the date of issue of the certificate may enroll in the Graduate School of the University of Wisconsin after fulfilling all necessary requirements and work towards a master's degree in physical therapy. While the courses to be taken toward this degree may vary with the individual student, depending on the credits already obtained, the work usually requires one year and includes the following: Advanced anatomy or physiology—8 credits, Advanced physical therapy (practical)—6 credits, Thesis—4 credits. Undergraduate chemistry, physics, zoology and physiology or anatomy are prerequisites. In special cases it is possible to arrange for part of the work to be taken during summer sessions although it is usually more desirable for students to attend the regular session.

For additional information regarding this course, write to the Chairman of the Department of Radiology and Physical Therapy, McArdle Memorial Laboratory, University of Wisconsin, Madison, Wisconsin.

COURSE IN MEDICAL TECHNOLOGY

A four-year course leading to the degree of Bachelor of Science (Medical Technology) has recently been established in the College of Letters and Science. For entrance to this course a student must satisfy the general admission requirements of the University. This curriculum is intended for those students who desire to prepare for technical work in laboratories of clinical diagnosis located in hospitals, private clinics or elsewhere.

REQUIREMENTS. A total of 120 credits and 120 grade-points is required for this degree, including a minimum of 90 credits of general required and elective work and 30 credits in the major, medical technology. The foreign-language requirement may be satisfied either by passing the intermediate examination in French or German, or by completing the fourth semester of French or German at the University of Wisconsin with a grade of C or better.

The iourth year is devoted entirely to the study of the specialized medical subjects required for the major and to practical work in the laboratories of the hospital. The work of the first semester of the fourth year begins September first, ceases for one and one half weeks at Christmas time and then instruction continues through the university final examination period. The second semester starts the last week in January and continues through the second week in June with no spring recess. The summer months are spent in the laboratories of the Wisconsin General Hospital. No academic credit is given for the summer work, but it is required for completion of the course. The laboratory fee for the fourth year is $25 per semester.

For additional information concerning the course, inquiry should be made to Dr. W. J. Meek, Assistant Dean of the Medical School.

MEDICAL TECHNOLOGY CURRICULUM

LEADING TO THE DEGREE OF BACHELOR OF SCIENCE (MEDICAL TECHNOLOGY)

FRESHMAN YEAR

First Semester	Credits	Second Semester	Credits
English 1a—Freshman English	3	English 1b—Freshman English	3
Chemistry 1a—General chemistry	5	Chemistry 1b—Qualitative analysis	5
French 1a or German 1a	4	French 1b or German 1b	4
Physics 65—General physics	3	Physics 65—General physics	3
Physical activity requirement	0-(1)	Physical activity requirement	0-(1)
	15-16		15-16

SOPHOMORE YEAR

English 30a, 32a, 33a, 40a, or 2a	3	English 30b, 32b, 33b, 40b, or 2b	3
French 10a or German 2a	3-4	French 10b or German 2b	3-4
Physiology 1—Human physiology	4	Chemistry 120a—Organic chemistry	2
Zoology 1—Animal biology	5	Chemistry 121a—Organic chemistry	2
		Zool. 119—Animal parasites of man	3
		Electives	2-3
	15-16		15-16

JUNIOR YEAR

Physiological Chemistry 104	4	Physiological Chemistry 117	4
Medical Bacteriology 1	5	Medical Bacteriology 2	3
History 4a—History of the U. S.	3	History 4b—History of the U. S.	3
Electives	3-4	Electives	5-6
	15-16		15-16

SENIOR YEAR

Med. Tech. 101—Urine analysis	5	Med. Tech. 111—Applied serology	4
Med. Tech. 102—Normal hematology	4	Med. Tech. 112—Applied parasitology	1
Med. Tech. 103—Special hematology	3	Med. Tech. 113—Clinical chemistry	5
Med. Tech. 104—Applied bacteriology	4	Med. Tech. 114—Microtechnique	3
		Med. Tech. 115—Electrocardiography	2
	16		15

MEDICAL TECHNOLOGY

PROFESSOR STOVALL; INSTRUCTORS BIRGE, THORNGATE

The courses in this department are especially designed for the major in the course in Medical Technology and are not open to election by students in other courses. Laboratory fees are $25 per semester.

101. URINE ANALYSIS. I; 5 cr. Chemical and microscopic examination of urine. 240 hours. 8-12 MTWTFS for 10 weeks. Dr. Birge.

102. NORMAL HEMATOLOGY. I; 4 cr. Hemoglobin determinations, cell counts; color, and volume index determination; platelet count; bleeding and coagulation time; erythrocyte fragility; sedimentation rate; blood grouping and cross matching. 201 hours. 8-12 MTWTFS for 4 weeks; 1:30-5 MTWTF for 6 weeks. Miss Thorngate.

103. SPECIAL HEMATOLOGY. I; 3 cr. Determinations outlined under "Normal Hematology" performed on abnormal blood. 177 hours. 8-12 MTWTFS for 3 weeks; 1:30-5 MTWTF for 6 weeks. Dr. Stovall.

104. APPLIED BACTERIOLOGY. I; 4 cr. Examination of smears, fluids, excreta, and pus for pathological organisms. 212 hours. 8-12 MTWTFS for 3 weeks; 1:30-5 MTWTF for 8 weeks. Miss Thorngate.

111. APPLIED SEROLOGY. II; 4 cr. Identification of organisms by serological methods Wassermann and Kahn tests. Tests for allergic conditions. 212 hours. 8-12 MTWTFS for 3 weeks; 1:30-5 MTWTF for 4 weeks. Miss Thorngate.

112. APPLIED PARASITOLOGY. II; 1 cr. 60 hours. 8-12 MTWTFS for 2½ weeks. Dr. Birge.

113. CLINICAL CHEMISTRY. II; 5 cr. Blood chemistry; chemistry of gastric and spinal fluids; basal metabolism. 318 hours. 7:30-11:30 MTWTFS for 3 weeks; 1:30-5 MTWTF for 13 weeks. Miss Thorngate.

114. MICROTECHNIQUE. II; 3 cr. 144 hours. 8-12 MTWTFS for 6 weeks. Dr. Stovall.

115. ELECTROCARDIOGRAPHY. II; 2 cr. 156 hours. 8-12 MTWTFS for 6½ weeks. Dr. Birge.

SCHOOL OF NURSING

CHRISTINA C. MURRAY, *Director*

FACULTY

ALBRECHT, MRS. AGNES MATTSON, *R.N.*, Instructor in Nursing
BAKKEN, MRS. HELEN BLEECKER, *R.N.*, Instructor and Supervisor in Nursing
BUNGE, HELEN LATHROP, *M.A., R.N.*, Assistant Professor of Nursing
CAREY, GLADYS KATHRYN, *R.N.*, Instructor and Supervisor in Nursing
CLIFFORD, MRS. EVA BEWICK, *R.N.*, Instructor and Supervisor in Nursing
CRUMP, MARGARET CLARA, *B.S., R.N.*, Instructor in Nursing
DAVIES, MRS. JUDITH ARNOLD, *B.S., R.N.*, Assistant Professor of Public Health Nursing
DRAPER, JOSEPHINE MARY, *B.S., R.N.*, Instructor in Nursing
EMANUEL, MARGARET RUTH, *B.S., R.N.*, Instructor in Nursing
FINKH, EVELYN LOUISE, *B.S., R.N.*, Instructor and Supervisor in Nursing
FLETCHER, LILA BELLE, *R.N.*, Associate Professor of Nursing; Superintendent of Nurses
HANSTEIN, MARGARET, *B.S., R.N.*, Instructor and Supervisor in Nursing
LIVINGSTON, HELEN MARGARET, *B.S.*, Instuctor and Acting Chief Dietitian
MURRAY, CHRISTINA CAMERON, *B.A., R.N.*, Director of the School of Nursing; Professor of Nursing
PAQUIN, MARJORIE CAPELL, *B.S., R.N.*, Instructor in Nursing
SEBORG, MRS. GRACE KELLOCK, *M.S., R.N.*, Assistant Professor of Nursing
STEHLE, EDITH ANNA, *B.S., R.N.*, Instructor and Supervisor in Nursing
STOLEN, THERESA, *B.S., R.N.*, Instructor and Supervisor in Nursing
WATSON, SHIRLEY RAE, *B.S., R.N.*, Instructor and Supervisor in Nursing
ZIEGEL, ERNA EMMA, *B.S., R.N.*, Instructor in Nursing

ASSOCIATE FACULTY

DR. J. S. EVANS and associate members of the medical staff of the hospital
DR. E. R. SCHMIDT and associate members of the surgical staff of the hospital
DR. A. L. TATUM and associate members of the Department of Pharmacology and Toxicology of the Medical School
DR. W. J. MEEK and associate members of the Department of Physiology
DR. PAUL F. CLARK and associate members of the Department of Bacteriology

ASSOCIATE TEACHING STAFF

ERNA KOWALKE, *Director*, Visiting Nurse Association, Milwaukee
ELIZABETH HANSON, *Educational Director*, Visiting Nurse Association, Milwaukee
ANN SCHMICH, *Director*, Visiting Nurse Association, Madison
CORNELIA VAN KOOY, *Director*, Bureau of Public Health Nursing, State Board of Health

ORGANIZATION AND AIMS

The School of Nursing of the University of Wisconsin is organized in association with the Medical School of the University and with the State of Wisconsin Gen-

eral Hospital. The coordinating committee of the school is composed of the Dean of the Medical School, the Superintendent of the Hospital, and the Director of the School, who has charge of the immediate administration. There is close affiliation between the school and other departments of the University. In the field of public health nursing the school has the cooperation of the Bureau of Public Health Nursing of the State Board of Health.

The school aims to give adequate training in the sympathetic care of the sick, to promote academic education as an aid to professional experience, and to stimulate advanced training and research in special fields of work within the realm of nursing.

ADMISSION

For matriculation in the School of Nursing a student must furnish evidence that she has satisfied the general requirements for admission to the University, as stated in the General Information Bulletin.

Students desiring to enter the School of Nursing are requested to communicate with the Registrar of the University and, for more specific details, with the Director of the School of Nursing, University of Wisconsin.

The physical and clinical facilities exact a sharp limitation of acceptances.

EXPENSE

During the period of pre-professional instruction, the minimum for which is one year, the student is subject to the same conditions as other students in the University and must provide for her room, board, and incidental expenses and pay the regular university fees. Board and room cost from $8 per week upwards. During the period of resident professional instruction no fees are charged and room, board, and laundry are furnished the students in the Nurses' Dormitory.

A detailed discussion of student expense, including university charges, loan funds and scholarships, self-support, etc., may be found in the General Information Bulletin.

CURRICULA

Combined Courses. Three curriculums are offered of combined academic and resident professional instruction leading to the degree of Bachelor of Science and Certificate of Graduate Nurse. Each requires somewhat more than five years for completion including 27 months of resident professional work in the School of Nursing. Two curriculums are offered leading to the degree of Bachelor of Science (Hygiene) in the College of Letters and Science. One curriculum gives a major in Public Health Nursing and the other permits a choice from the various major fields in the College of Letters and Science and in the Medical Sciences.

A third combined course curriculum is offered leading to the degree of Bachelor of Science (Home Economics).

Graduate Nurse Course. A fourth curriculum leads to the title of Graduate Nurse after completion of one or two years of academic work and 27 months of resident professional instruction.

COMBINED COURSE, DEPARTMENT OF HOME ECONOMICS

This course leads to the degree of Bachelor of Science (Home Economics). The following specific requirements must be satisfactorily met: (1) Completion of the required work of the freshman and sophomore years of the Courses in Home Economics, as outlined on page 233. (2) Completion of the following additional courses: Home Economics 7, 6, 22, 133; English 30b, 32b, 33b, or 40b; Anatomy 120 or Physiology 4; Nus-

ing 1, and the equivalent of Dietetics 1; Thesis, 4 credits. (3) Electives sufficient to bring the total credits of work required by the Department of Home Economics up to 94, including thesis. (4) Twenty-seven months of resident professional instruction in nursing. (5) A total of 129 credits and 129 grade-points, including 94 required by the Department of Home Economics and 35 earned during the period of resident professional instruction.

COMBINED COURSE, COLLEGE OF LETTERS AND SCIENCE

This curriculum leads to the degree of Bachelor of Science (Hygiene) with a major in one of the fields in the College of Letters and Science or in the Medical Sciences. The following specific requirements must be satisfactorily met:

ENGLISH. 12 credits as follows: 6 credits in composition, subject to the usual exemptions. 3 credits per semester for two semesters, to be taken in the first year of residence; 6 credits in literature, to be taken normally in the sophomore year.

FOREIGN LANGUAGE. Two years of either French or German in college if students do not meet the foreign-language requirement for the B.A. degree. (See page 61.)

HISTORY. 6 credits in a continuous year course, or mathematics, 8 credits.

SCIENCE. Chemistry 1, 10 credits; Physiology 4, 4 credits; Bacteriology 4, 3 credits; Nursing 1, 3 credits; Dietetics 1, 2 credits.

ECONOMICS, SOCIOLOGY, AND PSYCHOLOGY. Psychology 1 and Sociology 2. Either Economics 1a and Sociology 1 and 141; or 16 additional credits of science including 10 credits in biology and organic chemistry.

ELECTIVES. A sufficient number of electives must be taken to bring the total amount of work in the College of Letters and Science up to 94 credits including major study and thesis.

MAJOR STUDY. By the beginning of the junior year every candidate should be well started in her major study which must be chosen from the majors offered in the College of Letters and Science including majors in the medical sciences. This major may include a thesis, to be prepared during the final years of the combined course.

CREDITS. A total of 129 credits including 94 required by the College of Letters and Science and 35 earned during the required 27 months of resident professional instruction.

COMBINED COURSE, COLLEGE OF LETTERS AND SCIENCE WITH A MAJOR IN PUBLIC HEALTH NURSING

This curriculum leading to the degree of Bachelor of Science (Hygiene), provides for two years of college work followed by 27 months of instruction in nursing and by the major in Public Health Nursing which embraces the work of the fifth year plus 4 months of field work.

The following specific requirements must be satisfactorily met:

A. The completion of 60 credits in the College of Letters and Science which must include the following, exclusive of Nursing 1 and Dietetics 1, which are not Letters and Science courses, but should be taken in the second year:

ENGLISH. 12 credits as follows: 6 credits in English 1, and at least 6 credits in English 30, 32, 33 or 40. Students in English 1 are eligible for the usual exemptions.

LANGUAGE. Either German through 2b or French through 10b, or the passing of the appropriate intermediate examination. Another modern language may be substituted for cause on recommendation of the Director of the School of Nursing with the written approval of the dean.

HISTORY. 6 credits in a continuous year course, or MATHEMATICS 8 credits.

SCIENCE. Chemistry 1, 10 credits; Physiology 4, 4 credits; Bacteriology 4, 3 credits; (Nursing 1, 3 credits; Dietetics 1, 2 credits).

ECONOMICS, SOCIOLOGY AND PSYCHOLOGY. Economics 1a, 4 credits; Sociology 2, 3 credits; Psychology 1, 3 credits.

LETTERS AND SCIENCE ELECTIVES, to bring the Letters and Science total to at least 60 credits and 60 grade-points.

B. THIRD AND FOURTH YEARS

RESIDENT PROFESSIONAL INSTRUCTION (see outline of work above)

C. The completion of a fifth year of closely related subjects which constitute the major in Public Health Nursing 30-32 credits. This will include the following subjects:

Public Health Nursing 1, 2, 3, & 4 or 5	13-14 Credits
Sociology 145 or 249	2-4 Credits
Educational Psychology 119	3 Credits
Home Economics 1a or 1b, or 107S	2-3 Credits

Electives 10-12 credits to be chosen from history and the social sciences.

D. The completion of four months field work ---------- 8 Credits

A total of at least 133 credits is required.

Graduate nurses wishing to enter this course in order to be certified in the state of Wisconsin must meet the University requirements for entrance, must have their hospital records evaluated and approved, and must have at least sophomore standing on the regular college basis in order to be able to elect the necessary courses in psychology and sociology.

GRADUATE NURSE COURSE

COURSE OF STUDY LEADING TO THE TITLE OF GRADUATE NURSE

Students may register in the resident professional instruction after the completion of one to two years of academic work. This work must be chosen from the following subjects: English, 6 to 10 credits; History, 3 tc 6 credits, or Mathematics, 4 to 8 credits; Chemistry, 10 credits; Sociology, 3 credits; Psychology, 3 credits; Physiology 4, 4 credits; Bacteriology 4, 3 credits; Nursing 1, 3 credits; and Dietetics 1, 2 credits.

Students who are partly or wholly self-supporting should carry reduced programs during this pre-hospital period.

RESIDENT PROFESSIONAL INSTRUCTION

The resident professional instruction includes 27 months of ward practice and four semesters of nursing courses amounting to 35 credits as follows:

Therapeutics	3 Credits
Medicine & Surgery 1, 2, 3, 4, 5, & 6	19 Credits
Principles of Nursing 2, 3, 4, & 5	10 Credits
Education 47	3 Credits

STATE REGISTRATION

Upon the successful completion of the Graduate Nurse Course, graduates will be eligible for admission to the examination for registration in the states which have not enacted laws requiring three years' ward practice in a hospital. Graduates of the five-year combined course may register in all states where the school is registered.

DEPARTMENTS OF INSTRUCTION

DIETETICS

Instructor Livingston.

1. Selection, Preparation, and Serving of Food for the Sick. II; 2 cr.

MEDICINE AND SURGERY

Professors Burns, Gonce, Harris, Hyslop, Middleton, Nesbit, Pohle, Stovall, Waters; Associate Professors Campbell, Gale, Neff, McIntosh, Masten, Washburne, Wear; Assistant Professors Midelfart, Thornton, Wirka.

1. Recognition and Treatment of General Medical and Surgical Diseases. I; 4 cr. Operating room technique.

2. Health, Disease, and Therapy in Infancy and Childhood. II; 4 cr. Includes Pediatrics, Orthopedics, Anaesthesia and Physical Therapy.

3. Nervous and Mental Health, Disease, and Therapy. I; 3 cr. This course includes the principles of mental hygiene.

4. Health, Disease, and Therapy of the Eye, Ear, Nose, Mouth, Throat, Skin. II; 2 cr.

5. Special Therapeutic Technique. I; 2 cr. Communicable Diseases.

6. Obstetrics and Gynecology. I; 2 cr.

7. Medicine. II; 2 cr. Diet in Disease. Senior Medical Nursing.

NURSING

Professor Murray; Associate Professor Fletcher; Assistant Professors Davies, Seborg; Instructors Albrecht, Bakken, Carey, Clifford, Crump, Draper, Emanuel, Finkh, Hanstein, Paquin, Stehl, Stolen, Watson, Ziegel.

1. Introduction to the Study of Nursing. II; 3 cr.

2. Nursing Arts in Relation to Medicine and Surgery. I; 2 cr. Continuance of Nursing 1 which is prerequisite.

3. Nursing Arts in Relation to Medicine and Surgery 2 and 4. II; 2 cr. Prerequisites: Nursing 1 and 2.

4. Survey of Nursing Fields. II; 2 cr. Prerequisites: Nursing 1, 2, 3.

5. Advanced Nursing Arts. II; 4 cr. Prerequisites: Nursing 1, 2, 3.

PUBLIC HEALTH NURSING

Assistant Professor of Public Health Nursing Davies; Professors Gonce, Harris, Stovall; Associate Professor of Clinical Medicine Stiehm; Instructor Pessin.

1. Principles of Public Health Nursing Including Special Fields. I or II; 4 cr. History of movement—Administration and organization problems in official and private agencies. The nurse as a family health teacher in generalized and certain specialized fields.

2. Preventive Medicine and Community Health. I; 3 cr. Development of public health movement—Communicable disease control—Sanitation—Use of vital statistics—Organization and function of rural and urban health departments, local, state, national.

3. MENTAL HYGIENE. I; 3 cr. Prerequisite: Psychology 1. Factors in emotional adjustment. Problems concerned with individual and family relationships which public health nurses meet.

4. MATERNAL AND CHILD HYGIENE. II; 2 cr. History of the work in the United States—Child health clinics in urban and rural areas—Importance of preventive work—correction of defects, etc.

5. TEACHING IN PUBLIC HEALTH NURSING. I, II; 3 cr. Basic educational principles applied to public health nursing. Practice teaching.

20. FIELD WORK. I, II; 8 cr. Practical experience in selected urban and rural public health fields.

THERAPEUTICS

PROFESSOR TATUM; PHARMACIST KUENZI.

1. MATERIA MEDICA. I; 3 cr. The recognition, use, and danger of drugs used in medicine.

LAW SCHOOL

LLOYD K. GARRISON, DEAN

RAY ANDREWS BROWN, *B.A., S.J.D.*, Professor of law
CHARLES BUNN, *B.A., LL.B.*, Professor of Law
RICHARD VALENTINE CAMPBELL, *B.A., J.S.D.*, Professor of Law
NATHAN PAUL FEINSINGER, *B.A., J.D.*, Professor of Law
ALFRED LEROY GAUSEWITZ, *B.A., LL.B., LL.M.*, Professor of Law
HOWARD LEWIS HALL, *B.A., LL.B.*, Professor of Law
WILLIAM HERBERT PAGE, *B.A., LL.M., S.J.D.*, Jackson Professor of Law
WILLIAM GORHAM RICE, JR., *M.A., S.J.D.*, Professor of Law
OLIVER SAMUEL RUNDELL, *LL.B.*, Professor of Law
JACOB HENRY BEUSCHER, *B.A., J.S.D.*, Associate Professor of Law
JOHN CLOES STEDMAN *B.A., LL.B.*, Assistant Professor of Law
FRANK TILDEN BOESEL, *Ph.D., LL.B.*, Lecturer in Law
WILLIAM WADE BOARDMAN, *LL.B.*, Lecturer in Law
JAMES WILARD HURST, *B.A., LL.B.*, Assistant Professor of Law
PHILIP GREGORY MARSHALL, *LL.B.*, Law Librarian and Instructor in Legal Bibliography
MRS. FLORENCE LANNING, *B.A., LL.B.*, Assistant Law Librarian and Instructor in Legal Bibliography

ADMISSION

CANDIDATES FOR THE DEGREE. Applicants for admission to the Law School who expect to become candidates for the degree of Bachelor of Laws are required to have satisfactorily completed three full years of college work, equivalent to the first three years of either of the General Courses (B.A. or Ph.B.) in the College of Letters and Science of this University. (See Letters and Science bulletin.) The satisfactory completion of three years of work in a general course toward a bachelor's degree in arts, philosophy, or science in any college or university officially recognized by the University of Wisconsin will be regarded as satisfying this requirement. Applicants for admission to the Law School from such a college or university should send a transcript of their credits. for evaluation, to the Chairman of the Committee on Advanced Standing, Professor C. A. Smith, Bascom Hall, University of Wisconsin.

In addition, applicants for admission must have either:

(a) A grade-point average of at least 1.3 (or, in the case of a student entering the law school from another institution, its equivalent); or

(b) A bachelor's degree, with a grade-point average of at least 1 (or, in the case of a student entering the law school from another institution, its equivalent).

This requirement is based upon studies extending over several years which demonstrate that, as a general rule, pre-law students with mediocre academic records do not do well in Law School, and that, as a general rule, students with poor law school records do not do well in practice. There are, of course, many exceptions and therefore no absolute bar to admission has been made, a student with a bachelor's degree being permitted to enter with a grade-point average of at least 1. The law faculty feels, however, that a student with a pre-law average below 1.3, even if he has a bachelor's degree, should hesitate to enter the Law School unless he has a very strong bent for law, or is reasonably assured of a position in practice, or desires to study law as a training for business, or was hindered in his pre-law work by ill-health or other special circumstances.

For the information of students desiring to enter the Law School from institutions other than the University of Wisconsin, a 1.3 grade-point average in the University represents grades in the proportion of three B's to every seven C's.

ADVANCED STANDING. Applicants who are qualified to enter the Law School as candidates for a degree, and who have satisfactorily completed one or more years of resident work in a law school of good standing, having a three-year course, will be given equivalent rank in this School upon presenting properly authenticated certificates of such work. The right is reserved to give credit only if the student's work in the School is satisfactory, and, in the case of students whose last year only, or whose last year and one-third is spent in this Law School, a weighted average of at least 80 in all of his work at this School will be required for graduation. All persons who intend to apply for advanced standing under the above rule should, at least two weeks before the opening of the particular session which they desire to attend, forward a transcript of their law credits to the Dean of the Law School and a transcript of their pre-law credits to the Chairman of the Committee on Advanced Standing.

ENTRANCE IN FEBRUARY. Students with a grade-point average of at least 2.00 or a bachelor's degree with a grade-point average of at least 1 (or in the case of students entering from institutions other than the University of Wisconsin, its equivalent) may, with the special permission of the Dean, enter the Law School in February.

FEES AND EXPENSES

See section entitled Student Expense, beginning on page 2.

PRE-LEGAL STUDIES

The law faculty believes that a student who has a particular bent should major in the department of his choice. If a student does not have a particular bent, the law faculty recommends the major in American Institutions in the division of History and the Social Sciences. For detailed recommendations of particular courses within the requirements of this major, attention is directed to the bulletin of the Law School.

The law faculty recommends that all pre-law students, whether candidates for the B.A. or Ph.B., should, in their junior year, elect the course entitled *"Law in Society."* This course is given in the department of political science by members of the law faculty and is designed to give a broad picture of the nature, origin and development of law. The course in *English Constitutional History* is also particularly recommended to all pre-law students.

COMBINED COURSE: LETTERS AND SCIENCE AND LAW

As described in detail in the Letters and Science bulletin, students of that college who have completed the requirements of the first three years of one of the general courses may, in their senior year, elect the subjects required of first-year students in the Law School and credit this work toward both the arts and the law degrees.

COMBINED COURSES: ENGINEERING AND LAW

By arrangement with the College of Engineering, students who desire to obtain a training in the fundamental principles both of engineering and of law may, by pursuing the Engineering-Law courses, qualify for the degree of Bachelor of Science in Engineering at the end of four years, and for the degree of Bachelor of Laws at the end of six years, including attendance at one ten-week summer session of the Law School. For the details of this plan students should consult the catalogue of the Engineering School.

A course in patent law is given in the Law School which should be of particular interest to the students with engineering training.

REQUIREMENTS FOR GRADUATION

The degree of Bachelor of Laws will be conferred upon all candidates who are at least 21 years of age, who are of good character, who, in the judgment of the Faculty, possess satisfactory legal attainments, and who have complied with the following conditions:

(1) Completion of courses totaling at least 74 credits with a weighted average of 77.

(2) Residence of at least three years in law schools of good standing, the last year at least being in this School. A minimum of 10 law credits, or a minimum of 12 credits of which at least 7 must be law credits, must be earned in a semester to count that semester as a full half-year of residence in the Law School. Where less than these minimum credits are earned in a semester, partial residence will be allowed depending upon the amount of work taken. A full summer session in law (described hereinafter) counts for one-third of a year in residence.

(3) An apprenticeship of not less than six months in a law office, except as provided below. This requirement must be satisfied at a time when the candidate is not in attendance upon the University. At the option of the candidate the requirement may be met by two periods of not less than three months each. The requirement must be entirely absolved after the student shall have received credit for not less than twenty semester hours in the Law School. Credit for office study will not be granted unless the student complies with the following regulations: (a) At the beginning of the clerkship, he must file a certificate by his preceptor stating the date on which the clerkship began. (b) A like certificate showing the date of completion of the clerkship must be filed at the completion of the period. (c) A monthly report, signed by the student and endorsed by the preceptor, showing the kind and amount of work assigned to the student during the period of the report must also be filed.

A candidate for graduation who has obtained credit for the courses in evidence, pleading, practice, and practice court, who has obtained at least 82 credits with a weighted average of 77, and who has a residence of at least three years and three months in law schools of good standing, will be relieved from the requirement of office clerkship. Students who, because of schedule difficulties, or for other special reasons, cannot complete all the courses in evidence, pleading, practice, and practice court, may be exempted from this requirement by the Dean.

(4) Completion of a paper, dealing with some field of law, to be in the form of a Law Review leading article and to be approved by a member of the faculty.

Students completing the course with distinguished excellence may be recommended for the degree with honor.

ADMISSION TO THE BAR

The statutes of the State provide in effect that any resident graduate of the Law Department of the University of Wisconsin shall be admitted to practice in all the courts of this State by the Supreme Court upon the presentation of his diploma, and may be admitted when the Supreme Court is not in session by an order signed by one of the justices thereof and filed with the clerk of said court. (R.S. Wis., sec. 256.28.)

LAW FELLOWSHIP AND THE S.J.D. DEGREE

The Regents have created three fellowships in the Law School, awarded to outstanding law seniors who desire to return to the school for a fourth year leading to the submission of a thesis in some field of law and the granting of the degree of Doctor of Juridical Science (S.J.D.). The stipend is $600. The work of the fourth year con-

sists partly of the preparation of the thesis and partly of apprenticeship work in the offices of various state commissions, such as the Public Service Commission, the Tax Commission, etc. No one but a law fellow may be a candidate for an S.J.D. degree.

SUMMER SESSION

The summer session of the Law School extends over a period of ten weeks. The work is carried on in the same manner and with the same thoroughness as during the regular session. Courses are arranged to meet the needs of beginning and advanced students. The courses are the equivalents of those given in the first, second, and third years of the long session and carry full credit toward the law degree. Full work during the summer session consists of twelve hours per week. Written examinations are held at the completion of the courses. Students successfully completing courses aggregating twelve hours per week for the summer will receive credit for one-third of a regular academic year's work. The session thus enables students of this and other law schools and teachers or students in the College of Letters and Science who have completed the equivalent of three years of college work to shorten considerably the calendar period of residence required here and elsewhere for the law degree. The courses are so arranged as to be of service to practicing lawyers who may wish to pursue systematic investigation of particular subjects.

COURSES

The Law School curriculum is a standard one containing all of the courses normally offered by the leading law schools of the country. The courses for any given academic year are not finally arranged until the preceding May or June. They are printed in the Law School bulletin which is published in July of each year, a copy of which may be obtained from the Law School.

SCHOOL OF EDUCATION

C. J. Anderson, Dean

FACULTY

Anderson, C. J., *Ph.M., LL.D.*, Dean of the School of Education; Professor of Education

Annen, Mrs. Helen Wann, *B.F.A., M.S.*, Assistant Professor of Art Education

Barr, Arvil Sylvester, *Ph.D.*, Professor of Education

Bassett, Gladys Barton, *M.A.*, Associate Professor of Physical Education

Bigelow, Mary Dixey, *M.S.*, Lecturer in Physical Education, 1940-41, II

Borchers, Gladys Louise, *Ph.D.*, Associate Professor of Speech

Brown, Charles Edward, *M.A.*, Lecturer in Art Education

Budewig, Flossie, *B.S.*, Acting Instructor in the Teaching of Home Economics; also Wisconsin High School

Chase, Wayland Johnson, *M.A.*, Emeritus Professor of Education

Clark, Margaret Olynthia, *M.A.*, Instructor in Educational Methods; Teacher of Industrial and Fine Arts, Wisconsin High School

Cronin, Kathrine Lucille, *M.A.*, Associate Professor of Physical Education

Davis, Ira Cleveland, *M.A.*, Associate Professor in the Teaching of Science, also Wisconsin High School

Denniston, Mrs. Helen Dobson, *M.D.*, Associate Professor of Physical Education (On leave, 1940-41, II)

Dodge, Shirlee, Instructor in Physical Education; Teacher of Physical Education, Wisconsin High School

Doke, Howard Bailey, Assistant Professor of Drawing and Descriptive Geometry

Eastlick, John Taylor, *M.S.*, Teacher-Librarian, Wisconsin High School

Easum, Chester Verne, *Ph.D.*, Associate Professor of History

Edgerton, Alanson Harrison, *Ph.D.*, Professor of Guidance and Director of Vocational Guidance

Edgerton, Ronald Bryan, *M.A.*, Teacher of History, Wisconsin High School

Elsom, James Claude, *M.D.*, Emeritus Professor of Physical Education and Physical Therapy

Engel, Harold Anton, *M.A.*, Lecturer in Education; Assistant Program Director of WHA

Evans, Herbert Pulse, *Ph.D.*, Associate Professor of Mathematics

Fowlkes, John Guy, *Ph.D.*, Professor of Education

Francis, Robert J., *Ph.D.*, Assistant Professor of Physical Education

Freitag, Willis Dietrich, *B.S.*, Instructor in Agricultural Education

Glassow, Ruth Bertha, *M.A.*, Associate Professor of Physical Education

Gordon, Edgar Bernard, Professor of Music

Guyles, Calla Arathusa, *Ph.B.*, Assistant Professor in the Teaching of Latin, also Wisconsin High School

H'Doubler, Margaret Newell (Mrs. Wayne Claxton), *M.A.*, Associate Professor of Physical Education

Hellebrandt, Beatrice, *M.S., M.M.*, Instructor in Physical Education

HENDERSON, RUTH ADELE, *M.A.*, Assistant Professor in the Teaching of Home Economics, also Wisconsin High School (On leave, 1940-41)
HENSEY, IRENE ANITA, *M.S.*, Assistant Professor of Accounting
HOARD, MARJORIE JEAN, *M.A.*, Teacher of English, Wisconsin High School
HORNE, VIRGINIA LEE, *M.S.*, Instructor in Physical Education
JAMES, JOHN AMBROSE, *B.S.*, Professor of Agricultural Education
JENSEN, KAI, *Ph.D.*, Associate Professor of Education
JOHNSON, LAURA BUTLER, *M.A.*, Assistant Professor in the Teaching of French, also Wisconsin High School
JOHNSON, RUTH MARGARET, *Ph.M.*, Teacher of History, Wisconsin High School
JONES, THOMAS EDWARD, *B.A., M.Di., B.P.E.*, Professor of Physical Education; Track Coach
KIVLIN, VINCENT EARL, *M.S.*, Professor of Agricultural Education
KLIER, FRANK JOSEPH, *M.A.*, Teacher of German, Wisconsin High School
KNAPP, CLYDE GUY, *M.S.*, Instructor in Physical Education, also Wisconsin High School
KROFF, ALEXANDER YALE, *M.A.*, Teacher of French, Wisconsin High School
LEE, J(ONATHAN) MURRAY, *Ph.D.*, Assistant Professor of Education
LINDGREN, RUTH M., *M.S.*, Instructor in Physical Education
LITTLE, JAMES KENNETH, *Ph.D.*, Assistant Professor of Education
LIVERMORE, JOSEPH DOW, *B.S.*, Assistant Professor of Drawing and Descriptive Geometry
LOW, CAMILLA MARCIA, *M.A.*, Assistant Professor of Educational Methods
LOWMAN, GUY SUMNER, *B.Di., M.P.E.*, Professor of Physical Education; Chairman of the Course in Physical Education for Men
MCCARTY, HAROLD BERKLEY, *M.A.*, Lecturer in Education; Director of Radio Station WHA
MCCLOY, WILLIAM ASHBY, *M.A.*, Instructor in Art Education
MACKENZIE, GORDON NOTH, *M.A.*, Associate Professor of Education, Principal of Wisconsin High School, and Director of Practice Teaching
MALOOF, GEORGE JOHN, *M.D.*, Instructor in Physical Education
MANSFIELD, ARTHUR WILLIAM, *M.S.*, Associate Professor of Physical Education; Baseball Coach
MASLEY, ARPAD LOUIS, *G.G., B.P.E.*, Associate Professor of Physical Education
MEYER, MARGARET HINKEL, *M.S.*, Instructor in Physical Education
MILLIGAN, EDWARD ELGIN, *M.A.*, Assistant Professor of French and Italian
MORRISSEY, HAROLD J., *B.S.*, Instructor in Agricultural Education
MOULTON, FRANK STILLMAN, *A.I.A.*, Lecturer in Art Education
NICKERSON, FRANK, Lecturer in Art Education
NOFSKER, MRS. JULIA FRANK, *Ph.D.*, Teacher of Domestic Science and Art, Wisconsin High School
NOHR, ROBERT, JR., *G.G., B.P.E.*, Associate Professor of Physical Education
PELLA, MILTON ORVILLE, *B.E.*, Teacher of Science, Wisconsin High School
PHILLIPS, BURR WENDELL, *M.A.*, Associate Professor in the Teaching of History, also Wisconsin High School
POOLEY, ROBERT CECIL, *Ph.D.*, Associate Professor in the Teaching of English, also Wisconsin High School
PORTER, WILLIAM ALMONDE, *M.A.*, Teacher of Science, Wisconsin High School
POWERS, MARION BEATRICE, *M.A.*, Instructor in the Teaching of Speech Correction
PURVES, JAY, *B.S.*, Teacher of Physical Education, Wisconsin High School
RAGSDALE, CLARENCE EDWIN, *Ph.D.*, Associate Professor of Education
RIPPE, RUSSELL, *M.S.*, Assistant Professor of Physical Education
ROESELER, ROBERT OSWALD, *Ph.D.*, Professor of German
ROTHNEY, JOHN WATSON MURRAY, *Ed.D.*, Assistant Professor of Education
RUSSELL, HELEN LOUISE, *M.S.*, Instructor in Physical Education

SCHULD, ELMER GEORGE, *M.A.*, Teacher of Mathematics, Wisconsin High School
SCHWARZ, MARGUERITE MARY, *M.S.*, Instructor in Physical Education
SHEATS, PAUL HENRY, *Ph.D.*, Assistant Professor of Education
SMITH, DON KLIESE, *B.A.*, Instructor in Educational Methods
SPRINGHORN, RITA KATHERINE, *Ph.B.*, Teacher of English, Wisconsin High School
STEBBINS, ROLAND STEWART, *R.M.A.A.*, Associate Professor of Art Education
SUR, WILLIAM RAYMOND, *M.A.*, Assistant Professor in the Teaching of Music; also Wisconsin High School and Agricultural Short Course
THOMSEN, ARTHUR JOHN, *B.S.*, Assistant Professor of Physical Education
TORGERSON, THEODORE L., *Ph.D.*, Professor of Education
TRILLING, BLANCHE MATHILDE, *B.A.*, Professor of Physical Education; Director of the Course in Physical Education for Women
TRUMP, PAUL LE ROY, *Ph.D.*, Assistant Professor in the Teaching of Mathematics, also Wisconsin High School
ULLSVIK, BJARNE RAGNWOLD, *M.A.*, Teacher of Mathematics, Wisconsin High School
VAN KOERT, JOHN OWEN, *M.A.*, Instructor in Art Education
VARNUM, WILLIAM HARRISON, *B.P.*, Professor of Art Education
WAGNER, RAPHAEL DARRELL, *Ph.M.*, Teacher of Mathematics, Wisconsin High School
WALLER, CARL HAROLD, *M.S.*, Lecturer in Education; Teacher of Industrial Arts, Wisconsin High School
WALTON, JAMES HENRY, *Ph.D.*, Professor of Chemistry
WEBER, LYNDA MARGUERITE, *M.A.*, Assistant Professor in the Teaching of Biology, also Wisconsin High School
WEIGHTMAN, ESTHER, *B.S.*, *M.A.*, Teacher of Latin, Wisconsin High School
WILLING, MATTHEW H., *Ph.D.*, Professor of Education; Chairman of the Department of Education
WILSON, DELLA FORD, *M.A.*, Associate Professor of Art Education
ZAWACKI, EDMUND I., *A.M.*, Lecturer in Polish
ZUILL, FRANCES, *M.A.*, Professor of Home Economics

In April, 1930, the Regents of the University approved the action of the University Faculty establishing a School of Education of college rank, and gave to it jurisdiction over the undergraduate preparation of teachers.

The faculty of the School of Education is made up of the faculties of the Departments of Education, Educational Methods, Art Education, and Physical Education for Men and for Women, and those members of the faculties of the departments in the College of Letters and Science and of Agriculture who offer courses of junior and senior grade in the teaching majors and minors.

The School of Education provides professional preparation for teachers of academic high-school and junior high-school subjects of art, agriculture, home economics, and physical education; also play-ground and recreation supervisors, high-school librarians, principals, superintendents, and supervisors.

The preparation noted above rests upon a basis of a sound general education and includes: (1) a teaching major and minor in the academic or special fields; (2) professional training including courses dealing with the principles, psychology, and the practice of teaching, closely correlated with actual participation in the Wisconsin High School. Graduate courses in the various fields of education, including opportunity for research, are offered for those who recognize the desirability of study beyond the four years of college work, and who are preparing to become teachers in public schools, teachers' colleges, colleges, and universities, as well as supervisors and administrators.

WISCONSIN HIGH SCHOOL

The Wisconsin High School, a six-year secondary school is maintained by the University as an integral part of the School of Education. The primary purposes of this school are (a) the exemplification of sound educational theory and organization, with

special reference to secondary education, and (b) the provision of appropriate facilities for observation and directed teaching. The details of organization, program of studies, etc., will be found in the bulletin of the Wisconsin High School.

COMMITTEE ON FIELD SERVICES

The administration of field services, carried on by the School of Education, is directed by a special faculty committee. Field services are of the following types:

1. Visits, on call, to university-trained teachers, in order to assist them with their teaching problems.

2. Participation in conferences, institutes, and professional meetings held within the State.

3. The organization and operation of field clinics, forums, demonstrations, and field conferences.

4. Consultation with school officials and school boards on problems dealing with school buildings, curricula, guidance, organization, administration, special education, etc.

EDUCATIONAL LABORATORIES

Laboratories are maintained by the Department of Education for research, service, and training in the fields of child development, curriculum, educational diagnosis, learning, and statistics. These laboratories, in charge of a faculty committee from the Department of Education, are available for use by graduate students majoring in education and in allied departments, and by superintendents, principals, and teachers in the State.

ADMISSION AND REGISTRATION

1. Students electing a major in Art Education, in Applied Art, or in Physical Education will register in the School of Education at the beginning of the freshman year.

2. Freshmen and sophomores in the College of Letters and Science who expect to transfer to the School of Education and elect a teaching major in an academic field, are required to comply with the same general regulations outlined in the bulletin of the College of Letters and Science, pages 43-65, inclusive. Students electing a teaching major in an academic field are eligible for transfer to the School of Education when they have satisfactorily completed the regular requirements of the first two years of one of the General Courses in the College of Letters and Science. However, no student will be accepted into the School of Education unless his scholastic record is sufficiently high to indicate the probability of success in some teaching field. Applicants for transfer are also required to present evidence of proficiency in speech in the form either (a) a rating by the Speech Examination Committee of the School of Education, or (b) a grade in Speech 1 (Fundamentals of Speech—3 cr.). Students are advised to adopt the requirements of the first two years of one of the General Courses to the requirements for graduation from the School of Education, in order to obviate the necessity of spending more than four years in earning the B.S. (Education) degree. Any one of the four special sequences listed on pages 285-286, will serve to accomplish this purpose; numbers I and III fulfill the Ph.B. requirements, and numbers II and IV the B.A. requirements. Before transfer to the School of Education can be approved, substantial progress toward the completion of the general requirements and the selected pre-education sequence must be made.

3. Students in special courses (College of Letters and Science) having a complete two-year or four-year curriculum, such as the Course in Chemistry, the Course in Humanities, and the Schools of Commerce, Journalism, and Music, will retain their classification in the College of Letters and Science, but must also register in the School of Education in order to receive the University Teachers' Certificate.

4. Students electing a teaching major in agriculture or in home economics must register concurrently in the College of Agriculture and in the School of Education at the beginning of the junior year.

DEGREES

The School of Education grants the following degrees: Bachelor of Science (Education), Bachelor of Science (Art Education), Bachelor of Science (Applied Art), Bachelor of Science (Physical Education), and, jointly, with the College of Agriculture, Bachelor of Science (Agriculture and Education) and Bachelor of Science (Home Economics and Education).

Only students qualifying for degrees in the School of Education may receive the University Teachers' Certificate and the recommendation of the School of Education, with the exception of those in the special courses noted in 3 above.

REQUIREMENTS FOR GRADUATION

Graduation from the School of Education and recommendation for the University Teachers' Certificate in academic subjects are based upon the following conditions and requirements:

I. A total of 124 credits and 124 grade-points.

II. Preparation for teaching one of the following:
(a) a major subject and one minor subject; or
(b) a major subject and two minor subjects.

(The Wisconsin Department of Public Instruction requires two academic minors.)

To fulfill the requirements of preparation for teaching the selected major, a student must present credits in amount and kind as prescribed for a teaching major by the department of such major subject. This departmental prescription must in all cases include at least twenty credits, and, in addition, credit for the departmental teachers' course. (See Academic Teaching Majors and Minors, pages 287-297.) As soon as it is practical the completion of a major shall be conditioned upon the passing of a comprehensive examination on the work of such a major.

To fulfill the requirements of preparation for the teaching of the selected minor subject or subjects, a student must present credits in amount and kind as prescribed by the department of such minor subjects. This departmental prescription must contain fifteen credits, exclusive of the departmental teachers' course. (See Academic Teaching Majors and Minors, pages 287-297.)

III. Fulfilling the course requirements of one of the following sequences:

SEQUENCE I

A. No foreign language required.

B. Required: English composition, 9 cr. (English 1 and 2a or 2b); history 10 cr.†; social sciences, 6 cr.‡; mathematics or philosophy, 10 cr.**§; natural science, 20 cr. in regular year courses or in survey courses in science numbered 17.

SEQUENCE II

A. Required: Intermediate knowledge of one language, based on attainment examination.

B. Required: English literature, 6 cr.; English composition, 6 cr.; history, 6 cr.†; social sciences, 6 cr.‡; philosophy, 6 cr. or mathematics, 8 cr., or the completion of Mathematics 1b or 3b**§; natural science, 10 cr.* in elementary survey courses or in regular year courses or both.

SEQUENCE III

A. Required: Intermediate knowledge of one language, based on attainment examination.

B. No English literature required. Required: English composition, 6 cr.; history, 6 or 10 cr.†; social sciences, 6 cr.‡; mathematics, 10 or 8 cr. or philosophy 10 or 6 cr.**§; natural science, 20 cr.* in regular year courses or in survey courses in science numbered 17. (If history is elected for 6 credits, mathematics or philosophy must be elected for 10 credits; if history is elected for 10 credits, mathematics or philosophy should be elected for 8 or 6 credits, respectively.)

SEQUENCE IV

A. Required: Proficiency in one foreign language, or intermediate knowledge in two foreign languages, or intermediate knowledge in one foreign language, based on attainment examination, plus 10 cr. in literature courses in that language.

B. Required: English composition, 6 cr.; English literature, 6 cr.; two of the following: (a) history, 6 cr.† and social sciences, 6 cr.‡; (b) mathematics, 8 cr.§ or the completion of Mathematics 1b or 3b; (c) natural sciences, 10 cr.* in elementary survey courses or in regular year courses or both.

IV. Applicants for registration in the School of Education shall present evidence concerning their speech proficiency in the form of either (a) a rating by the Speech Examination Committee of the School of Education, or (b) a grade in Speech 1.

V. The recommedation of the departments of the major and minor subjects, or the responsible authorities of the special courses, as to fitness for teaching.

VI. The presentation of a certificate of physical health and fitness from the University Medical Examiner.

VII. Completion of the following professional requirements (18 credits):

Educ. 73—The child: his nature and his needs ..... 3 cr.
Educ. 74—The school and society ..... 3 cr.
Educ. 75—The nature and direction of learning ..... 5 cr.
A course in the teaching of the major subject (senior year) ..... 5 cr.
*Elective in the Department of Education ..... 2 cr.

For information concerning the graduation requirements in the four-year courses in Art Education, Applied Art, and Physical Education see pages 299-306.

The requirements for graduation in Agriculture and Education and Home Economics and Education are given on pages 306-308.

REGULATIONS OF THE WISCONSIN DEPARTMENT OF PUBLIC INSTRUCTION FOR THE CERTIFICATION OF TEACHERS IN WISCONSIN

High School. Graduation from an approved four-year course in an accredited college, with the following minimum requirements:

A. Academic preparation

1. One major subject—24 semester hours; and two minor subjects—15 semester hours each

   or

2. Two major subjects—24 semester hours each.

*Must include at least one semester course in the biological sciences, zoology being strongly recommended. It is recommended that the rest of the science requirement be met in the physical (non-biological) sciences.

**Philosophy 21 (Introduction to philosophy), 3 cr.; and Philosophy 11 (Elementary logic), 3 cr., are required.

†Must include a year course in European or American history.

‡Political Science 7 (3 cr.), Geography 6 (3 cr.), and economics or sociology (3 cr.) are recommended.

§Mathematics 7 may not be counted in satisfaction of this requirement

B. Professional requirements for a first license—total of 18 semester hours as follows:

1. Educational psychology or psychology of learning_____3 hours
2. Teachers' course in major subject_____2 hours
3. Practice teaching _____5 hours
4. Elective semester hours in approved courses_____8 hours

Special. Licenses and certificates to teach special subjects will be issued upon graduation, with satisfactory attainment, from an approved four-year course in an accredited college, with major preparation in the special fields, and with recommendations by the authorized supervisory officials. At least one academic minor must be included in the college course. The major preparation must be based upon a minimum of thirty semester hours in addition to the required eighteen semester hours of professional training.

SPECIAL STATUTORY REQUIREMENTS

For teachers of science, the social studies and agriculture.

Chapter 445—Laws of 1935, State of Wisconsin, reads as follows: "In granting certificates for the teaching of the courses in science and the social studies, adequate instruction in the conservation of natural resources shall be required." See *Geography 128, Conservation of Natural Resources* (first or second semester); or *Economics 117, Outline of Land Economics* (first semester).

Chapter 397—Laws of 1935, State of Wisconsin, reads as follows: "In granting certificates for the teaching of courses in economics, the social studies, and agriculture, adequate instruction in cooperative marketing and consumers' cooperatives shall be required." See *Agricultural Economics 127* (first semester, second semester, and summer session), *Cooperative Marketing.*

ACADEMIC TEACHING MAJORS AND MINORS

Only such departments and courses of instruction are here indicated as are immediately related to the professional work of the School of Education.

A GENERAL MAJOR IN AMERICAN INSTITUTIONS IN THE DIVISION OF SOCIAL SCIENCES

The major is administered by a divisional Committee. A student taking this major should have as his adviser a member of this Committee. The assignment of students to advisers is made by the History representative of the Committee. The members of the Committee are: Professor Boegholt (Philosophy), Finch (Geography), Gaus (Political Science), McCormick (Sociology), Nettels, Chairman (History), Perlman (Economics).

Students in the School of Education completing this *major* are exempt from the requirement of *minors.* (Also, the requirement of a major and two minors, as fixed by the *Wisconsin Department of Public Instruction,* is satisfied by the completion of this *major.*) The major includes the following requirements:

1. A minimum of *forty-five* credits in the Division.

2. History—*Ten* credits in history courses open to freshmen (Ancient, Medieval, Modern, English, European from the Fall of Rome, or the sequence of English History followed by English Constitutional History), and *six* credits in addition, to be taken in American History.

3. At least *twenty-nine* credits (or such additional number as to total, with the history credits, at least forty-five credits), to be earned in three departments in the courses listed in section 4. In exceptional instances courses may be selected from a fourth de-

partment, with the written consent of the Chairman of the Divisional Committee, given in advance. Not more than six credits earned in courses numbered under 100, in addition to the history requirement stated above, will be accepted toward the major.

4. The courses from which selections are to be made are:

Economics

		Credits
1	General Economics	4-6
19	Economic History of the United States	2-3
103	Financial Policies	3
105	Money and Banking	3
117	Outlines of Land Economics	3
119	The Evolution of Industry	3
120	Social Insurance	3
122	Labor Problems	3
123	Labor Legislation	3
124	Taxation	3
127	Cooperative Marketing	3
129	Cooperative Management Problems	2
133	Financial History of the U. S.	3
135	Railway Transportation	3
136	Transportation Problems	3
137	Corporation Finance	3
142	Public Utilities	3
144	Capitalism and Socialism	3
145	American Labor History	3
146	Government and Business	3
152	Farmer Movements	3
174	The Labor Market	3
179	Urban Land Economics	3
180	Departmental Reading Course*	2-4
191	The Credit System	3

Geography

3	Economic Geography	3
6	Regional World Geography	3
103	Geography of North America	3
104	Geography of Wisconsin	2
127	Industrial Geography of the U. S.	3
128	Conservation of Natural Resources	3
180	Departmental Reading Course*	2-4

History

1	Medieval History	3-2
2	Modern European History	3-2
3	European Civilization since the Fall of Rome	5-10
4	History of the United States	3
5	English History	3-2
10	Ancient History	3-2
111	History of the West	3
113	American Social History	3
114	The Era of the Sectional Controversy	3
115	The American Revolution	3
116	American Colonial History	3
117	American Constitutional History	3-6
118	Civil War and Reconstruction	3
120	American Foreign Relations	3-6
122	American Economic Life	3-6
124	Recent History of the United States	3-6
141	English Constitutional History	3-6
180	Departmental Reading Course*	2-4

Philosophy

11	Elementary Logic	3
21	Introduction to Philosophy	3
25	Philosophy and the Human Enterprise	3
41	Introductory Ethics	3
111	Applied Logic	3
120	Philosophy of Science	3
132	History of Modern Philosophy	3
139	American Philosophers	3
150	A Philosophy of Democracy	3
180	Departmental Reading Course*	2-4

Political Science

7	American Government	3
13	Municipal Government	3
112	Constitutional Law	3
115	Law in Society	3
122	Political Parties and Public Opinion	3
123	American Diplomacy	2
126	Legislation	3
131	The United States and Latin America	3
134	Local Rural Government	3
135	Municipal Administration	3
137	International Organization and Diplomacy	3
139	State Government	3
140	Far Eastern Politics	3
143	Introduction to Public Administration	3
144	Police Power and Social Legislation	3
152	Legislation for the Conservation of National Resources	3
165-6	American Political Thought	3-6
180	Departmental Reading Course*	2-4

Sociology and Anthropology

46	Introduction to Anthropology	3
125	Rural Sociology	2
132	Introductory Social Statistics	3
139	Social Psychology	3
140	General Sociology	3
141	Poverty and Dependency	3
160	Family and Marriage	3-4
161	Criminology and Penology	3
163	Population Problems	3
176	The Modern City	3
177	Social Legislation	3
180	Departmental Reading Course*	2-4
192	Rural Regional Planning	3
197	Personality and Social Adjustment	3

*Only one 180 course may be counted toward the requirement of the Major, but arrangements may be made for a joint program, inclusive of instruction in more than one department.

5. A special paper, to be assigned by a Divisional Committee adviser, may be required of each senior; and general discussion meetings may be arranged from time to time for all students enrolled in the Major.

BOTANY

EDWARD MARTINUS GILBERT, *Ph.D.*, Professor of Botany and Plant Pathology, *Chairman*

Students preparing to teach botany, who elect the subject either as a major or a minor, are advised to select courses which will include work in structural (morphological), physiological, and taxonomic or field work.

MAJOR. A minimum of 30 credits from the following courses: Zoology 1; Botany 1, 2, 103, 104, 107, 108, 110, 112, 113, 117, 129, 130, 131, 146, 153, 154, 156, 160, 162, 163, 164, 165. (Please note also statutory requirement for certification, described on page 287.) A student who majors in the department and attains a grade-point average of 2.0 or above may be permitted to undertake an independent research problem and write a thesis during his or her senior year. Such a student should confer with his adviser or with the chairman of the department in regard to the feasibility of electing a thesis.

MINOR. A minimum of 15 credits from the following courses: Botany 1, 2, 103, 104 107, 108, 110, 112, 113, 117, 129, 130, 131, 146, 153, 154 or 156, 160, 164, 165. Attention is called to courses 1 and 2 which together constitute a year's work, and which are especially adapted to the needs of those taking a teachers' minor in botany.

Educational Methods 71. The Teaching of Biology. 2 or 5 credits.

CHEMISTRY

JOSEPH HOWARD MATHEWS, *Ph.D.*, Professor of Chemistry, *Chairman*

MAJOR. 30-32 credits, including 8-10 credits in general chemistry and qualitative analysis (1), 8 credits in quantitative analysis (11), 4 credits in organic chemistry-lectures (120), 3 credits in organic chemistry-laboratory (121), 4 credits in physical chemistry-lectures (130), and 3 credits in physical chemistry-laboratory (131). (Please note also statutory requirements for certification described on page 287.)

MINOR. A minimum of fifteen credits.

Educational Methods 72. The Teaching of Chemistry. 2 or 5 credits.

COMMERCE

FAYETTE HERBERT ELWELL, *B.A., C.P.A.*, Professor of Accounting, *Director*

The School of Commerce affords certain facilities for those students who wish to prepare themselves to teach commercial subjects in secondary schools. Such students are advised to consult with the Director of the School of Commerce in the arrangement of elective work.

Educational Methods 75. The Teaching of Bookkeeping. 2 or 5 cr.

COMPARATIVE LITERATURE

PHILO MELVIN BUCK, JR., *M.A., Litt.D.*, Professor of Comparative Literature, *Chairman*

This major serves a double purpose: first, to acquaint the student with the more important works, in translation or in the original, in the literature of the world and to show their present-day significance; and, second, to enable the student to study in their mutual relationships the literature in two or more languages. A major, therefore, in

Comparative Literature is a composite of courses in Comparative Literature and the literatures in two languages. For the sake of convenience only, the first is called the Major, and the second the Minors.

MAJOR. 20 credits in Comparative Literature, including Course 9, the remaining 14 credits being selected to offer the best background for the courses taken in the Minors. It is recommended that four of the credits be devoted to independent work, under the direction of an instructor of the department or in a proseminary, the result of which may be shown in a report.

MINORS. The two minors will correspond generally to the minors defined in the catalogue (and in this bulletin) by the several language and literature departments. Such combinations as English and Latin, English and a modern language, Latin and a modern language are suggested. The fulfillment of the practice teaching requirement will, of necessity, be met in these departments. In the case of a modern foreign language the student is expected to take the course in composition and conversation.

In addition, the student majoring in Comparative Literature is urged to take as electives appropriate courses in one or more of the following departments: History, Philosophy, Art History and Criticism.

MINOR (Comparative Literature). Comp. Lit. 9 and Comp. Lit. 165 are required. At least one other course should be taken to complete a total of 15 credits, the selection depending upon what is offered in the year during which the minor is being completed.

A teachers' course in Comparative Literature is not offered, but majors in Comparative Literature find it possible to fit themselves to teach in two departments, and should arrange their teachers' course in accordance with their plans. Educational Methods 76 (The Teaching of English), or any course in the teaching of ancient or modern languages, is accepted in lieu thereof.

ECONOMICS

EDWIN E. WITTE, *Ph.D.*, Professor of Economics, *Chairman*

MAJOR. A minimum of 30 selected credits. (Please note also statutory requirements for certification described on page 287.)

MINOR. Educational Methods 84 (for 2 credits) and a minimum of 15 credits in economics, to include Economics 1a and 1b (8 credits).

No regular course in the teaching of economics is offered but a teachers' course in a related subject such as history, will be accepted.

EDUCATION

For general information concerning the equipment and the courses offered in education, see pages 311-316. For detailed information relative to the special requirements of courses in education for the University Teachers' Certificate, see page 286.

ENGLISH

MERRITT Y. HUGHES, *Ph.D.*, Professor of English, *Chairman*

MAJOR. A minimum of 34 credits, including (a) Freshman English; (b) one, and only one, of the following, 30, 32, 33, 40; (c) one, and only one, of the following: 37, 136, 137; (d) two of the following, one of which must be either Chaucer or Milton: 31, 57, 129, 131, 156, 157, 160, 161, 162; (e) not more than two of the following (one will suffice): 134, 135 (or 132), 141, 169, 174; (f) a thesis or its equivalent; (g) English 123 or 124, and Educational Methods 76.

MINOR. I. One course, and only one, from the following group: 30, 32, 33, 40. II. One semester from the composition courses of the following group: 2a, 5, 8. III. 123 or 124. IV. One of the following groups: (a) two of the following: 134, 135 (or 132), 141;

(b) one, and only one, among 37, 136, 137; (c) 169 and 174. V. Educational Methods 76.

Educational Methods 76. The Teaching of English. 2 or 5 cr.

FRENCH AND ITALIAN

HUGH ALLISON SMITH, *M.A.*, Professor of French, *Chairman*

Students who specialize in French or Italian are advised to elect related courses in history, art, other languages and literatures, and philosophy. Those who expect to continue for advanced degrees should note that knowledge of another foreign language is required for the M.A., and that for satisfactory work in Romance philology some knowledge of Latin is indispensable. Both Latin and German as well as another Romance language are required for the Ph.D., and should be acquired as early as possible.

Educational Methods 81. The Teaching of French and Italian. 2 or 5 cr. (The attention of graduate assistants is called to Educational Methods 184, page 317.)

FRENCH

All majors and minors in French or Italian are required to register with the Department at the beginning of their candidacy. To be accepted as a candidate one must have a minimum grade-point average of 1.5 in the first two years of the language.

MAJOR. For departmental recommendation in the major, candidates for the University Teachers' Certificate must be able to read comprehendingly classical and modern French, have a reasonable ability to understand and speak French, and some knowledge of French literature and culture.

A minimum of 28 credits in advance of French 1b is required, including the following specific training:

(a) 4 credits of composition and conversation (25, 124, or 127), with grade *B*, or equivalent training (training in the French House is accepted toward this requirement);

(b) 2 credits of phonetics (190);

(c) 5 credits in educational methods (81) (not counted in the 28 credits);

(d) 6 credits in courses of literature or civilization in the 100-group;

(e) 4 credits of thesis or thesis substitute;

(f) a certificate in oral French, showing ability to use the spoken language in teaching, to be obtained from the department either by examination or by furnishing evidence of adequate training at the French House, or elsewhere.

MINOR. Students intending to minor in French should have their plan of French studies approved by a professor of the Department. Minimum, 18 credits in advance of 1b, including:

(a) Two credits in French conversation and composition with grade of *B*, to be acquired before the second semester of the junior year. (Training at the French House is accepted in lieu of this requirement by special arrangement made in advance);

(b) French 21 or 3 credits in a more advanced course in French literature;

(c) 2 credits of phonetics (French 190).

Minor students not majoring in some foreign language are strongly advised to take Educational Methods 81 in addition.

French 13 does not count toward the requirement for major or minor.

ITALIAN

MAJOR. (a) 24 credits in advance of 1b, including 4 credits in composition and conversation with an average grade of *B*. (b) Educational Methods 81, 2-5 credits.

MINOR. 18 credits in advance of 1b, including 2 credits in composition and conversation.

GENERAL SCIENCE

(See Natural Science, page 295)

GEOGRAPHY

VERNOR CLIFFORD FINCH, *Ph.D.*, Professor of Geography, *Chairman*

MAJOR. A minimum of 30 credits as prescribed by the Department of Geography, and *Educational Methods 84 or 97* (5 credits) (Please note also statutory requirements for certification described on page 287, and departmental statement described on page 130 of the Letters and Science Bulletin, or the General Catalog.)

MINOR. *Educational Methods 84 or 97* (for 2 credits) and a minimum of 15 credits in Geography 1-2, 5, or 17, and a regional course, preferably Geography 103.

GERMAN

WILLIAM FREEMAN TWADDELL, *Ph.D.*, Professor of German, *Chairman*

MAJOR. A minimum of 24 credits in advance of course 2b. In addition to the thesis, or thesis substitute, these credits must include courses 25 or 112, 191, 131, 150, and Educational Methods 83.

MINOR. A minimum of course 25, at least 9 credits in literature from courses beyond 2b, including 3 credits from courses in Group B (101-109), and Educational Methods 83.

Students who are preparing to teach German as their major or minor subject should consult Professor Roeseler, if possible at the end of their sophomore year, or, by letter during the summer months, before the opening of the fall semester. Those who have done a considerable amount of work elsewhere, or who have had successful teaching experience, may be excused, by action of the department, from some of the required work. Such excuse will generally be granted only on the basis of an examination, and in no case will students be recommended by the department unless they have taken at least 4 credits in German at Wisconsin.

Educational Methods 83. The Teaching of German. 2 or 5 cr.

HISPANIC STUDIES

JOAQUIN ORTEGA, *M.A.*, Professor of Spanish

MAJOR. (1) Pre-education sequence IV. (2) Economics 1a (General economics) is required. (3) The following courses are recommended for election in the first two years: Geography 1-2 (Physical geography), 5 (Regional world geography: physical aspects) or 17 (Survey of physical geography: man's natural environment); Geography 3 (Economic geography) or 6 (Regional world geography: cultural aspects); History 2 (Modern European history); History 3 (European civilization since the fall of Rome); History 4 (History of the United States); Political Science 7 (American government and politics). (4) The teaching major in Spanish (See page 296). (5) Basic courses as follows:

	Credits
Anthropology 103—Native peoples of Central and South America	3
Art History 157—Patterns and principles of Spanish art (or cognate fields of Spanish art offered by this department)	2
Economics 151—Latin America: economic development and trade	3
Geography 102—Geography of South America	3
Geography 111—Geography of Middle America	2

History 119—Latin American History History 130—History of Spain, 1000-1825	6
Journalism 121—Reporting Hispanic affairs	2
Political Science 131—The United States and Latin America	3
Spanish 47—Spain and Spanish America of today	4
Spanish 117—Commercial and industrial practice in Hispanic countries	2
Spanish courses numbered above 100 in the field of language, besides 117 above (2 cr.); literature (4 or 6 cr.); and civilization of Spain and Spanish America (2 cr.)	8
Total	38

For further information about this matter consult bulletin of the College of Letters and Science, pages 51-52.

HISTORY

JOHN DONALD HICKS, *Ph.D.*, Professor of History, *Chairman*

MAJOR. Not less than 32 nor more than 40 credits in history to include: History 2 (6-4 cr.) or History 3b (5 cr.)*; one other introductory course (History 1, 5, or 10 for 4-6 cr.); History 4 (6 cr.); at least a semester course, either elementary or advanced, in each of the fields of ancient and medieval history, counting History 5a as medieval history; at least 16 credits in advanced history courses taken in residence at the University of Wisconsin, of which 2 in each semester of the senior year may, in the judgment of the adviser, be assigned to the preparation of a thesis. Outside the department, Educational Methods 84 (5 cr.), Economics 1a, and Political Science 1 or 7 are required, and Sociology 110 (Pre-history) and Geography 1-2 are strongly recommended. (Please note also statutory requirement for certification, described on page 287.)

MINOR. Educational Methods 84 (2 cr.) and a minimum of 16 credits in history, including at least 4 credits in advanced courses taken in residence at the University of Wisconsin.

Educational Methods 84. The Teaching of History and the Social Studies. 2 or 5 cr.

JOURNALISM

GRANT MILNOR HYDE, *M.A.*, Professor of Journalism, *Director*

MAJOR. A minimum of 30 credits, including Journalism 191 and the required studies of the Bachelor of Arts (Journalism) degree.

Journalism candidates for the University Teachers' Certificate are required to register in the School of Education, as well as in the School of Journalism, at the beginning of the junior year. Such students should elect Educational Methods 76 (The Teaching of English), should complete one minor in English (omitting the advanced courses in English composition, numbered 2, 5, and 6), and may substitute a second minor in one social science in place of the 15 credits of advanced social science required for the degree in Journalism (see page 81 in the Letters and Science bulletin or the General Catalog.)

MINOR. A minimum of 15 credits, including at least Journalism 110, Journalism 191, and one semester each of Journalism 2 and Journalism 3.

Educational Methods 76. The Teaching of English. 5 cr.

*Students who elect History 3b may not elect History 1 or 2.

LATIN

WALTER RAYMOND AGARD, *B.Litt.* (*Oxon.*), Professor of Greek, *Chairman*

MAJOR. A minimum of 30 credits beyond Latin 1b (two years of high-school Latin), or 22 credits beyond Latin 10b (four years of high-school Latin), including Latin 21 (6 or 8 credits), 31 and 32 (6 credits), 35 (if Latin 21 was taken for 6 credits) and 101 (2 or 4 credits), and at least 6 credits in reading courses of the 100-group. For the *teaching major,* 5 credits in the methods of teaching Latin (Educational Methods 90), in addition to the courses listed above.

MINOR. A minimum of 22 credits beyond Latin 1b (two years of high-school Latin) or 14 credits beyond Latin 10b (four years of high-school Latin), including Latin 21 (6 or 8 credits), 31 and 32 (six credits), and, if Latin 21 was taken for 6 credits, 35 (2 credits). Students who major in another foreign language, and take the methods course in it, may omit the methods course in Latin for the minor, but will substitute for it 3 credits in reading courses of the 100-group.

Educational Methods 90. The Teaching of Latin. 2 or 5 cr.

LIBRARY SCIENCE

The Library School offers the following courses for those who are qualifying for positions as high-school teacher-librarians:

LIBRARY SCIENCE 150. Library Science for Teachers. Yr; 2 cr. The object of the course is to qualify those taking it to assume, in connection with their teaching, the supervision of high-school libraries, and to give instruction to high-school students in the use of books, and libraries and in the means and methods of developing good habits and right tastes in reading. This course does not qualify for full-time library positions, but is for teacher-librarians as required by the Wisconsin Statutes. Open to seniors and graduate students, and to juniors by special permission. Library School Faculty.

MATHEMATICS

MARK HOYT INGRAHAM, *Ph.D.,* Professor of Mathematics, *Chairman*

MAJOR. (a) A minimum of 21 credits, which shall consist of a year's course in calculus, Mathematics 106, and courses in mathematics numbered 100 or above, excluding Mathematics 135. Students majoring in this department must earn at least as many grade-points as credits in all work included in the major. Eligibility to write a thesis is based on a minimum of 9 credits in mathematics taken at the University of Wisconsin and is determined by the average number of grade-points per credit earned in the courses included in the major. Those whose average is less than 2.0 are not permitted to write theses; those with averages above 2.0 are subject to individual rulings by the department, with consideration given to the student's record and wishes. Students entering the junior class with advanced standing who expect to complete a major in mathematics in four semesters should previously have completed a year's course in calculus; (b) a knowledge of solid geometry acquired in the secondary school or elsewhere; (c) Mathematics 108 (not required) is recommended as a desirable course for teaching majors. (Seniors majoring in mathematics, who have not had Education 3, should elect Educational Methods 93.)

MINOR. A minimum of 15 credits, including a year's course in calculus and excluding courses 7 and 24. It is understood that at least 6 of these credits shall be earned in residence at the University of Wisconsin with a grade not lower than B, of which not more than three may be counted from courses 1a, 1b, 3a or 3b. In addition, Educational Methods 93 or its equivalent is required. A knowledge of solid geometry, acquired in college or elsewhere, is expected.

Educational Methods 93. The Teaching of Mathematics 2 or 5 cr.

MUSIC

CARL E. BRICKEN, *B.A.*, Professor of Music, *Director*

The School of Music offers a four-year course leading to the degree of Bachelor of Music; see special bulletin for detailed requirements. The following credits are required for the University Teachers' Certificate:

Educ. 73—The child: his nature and his needs	3 cr.
Educ. 74—The school and society	3 cr.
Educ. 75—The nature and direction of learning	5 cr.
Educational Methods 2 or 3 (to be determined by the major field)	5 cr.
*Elective in the Department of Education	2 cr.

NATURAL SCIENCE

MAJOR. 55 credits in science for those who have had less than three years of science in high school; 50 credits for those who have had three years or more of science in high school. These credits must represent one full-year course in each of three of the following science fields: biology, physics, chemistry, and earth science (geology or physical geography); 10 additional credits in one of these fields; 4 credits in physiology; and such elective courses in science as may be needed to make up the total requirement of 50 or 55 credits. (Please note also statutory requirement for certification, described on page 287.)

(NOTE: This teaching major in natural science will be regarded as fulfilling the requirement of the School of Education for both a major and a minor. Also, the requirement of a major and two minors, as fixed by the *Wisconsin Department of Public Instruction,* is satisfied by the completion of this *major.*)

GENERAL SCIENCE MINOR for students whose major is a field other than Natural Science: 15 credits in science, 5 of which must be in physics, 5 in chemistry, and 5 in biology, in addition to Educational Methods 97. (Please note also statutory requirement for certification, described on page 287.)

Educational Methods 97. The Teaching of Science, 2-5 cr.

(For additional information consult Associate Professor Ira C. Davis, Wisconsin High School.)

PHYSICAL EDUCATION

(See pages 302-306)

PHYSICS

LEONARD ROSE INGERSOLL, *Ph.D.*, Professor of Physics, *Chairman*

MAJOR. A minimum of 29 credits which shall include the following courses: 1 or 31 or 51-52, 100, 102, 103, 104a, and Educational Methods 97. Other credits are to be selected from 7, 10, 104b, 106, 112, 115, 116, 117, 118, 119, 124, 126, 134.

MINOR. A minimum of 15 credits selected from the courses listed for a major.

Educational Methods 97. The Teaching of General Science. 2-5 cr.

PHYSIOGRAPHY

(See Geography, page 292)

PHYSIOLOGY

WALTER JOSEPH MEEK, *Ph.D.*, Professor of Physiology, *Chairman*

MAJOR. A minimum of 23 credits as follows: 3 credits in physiological chemistry;

*May include a course in the teaching of the minor subject, for two credits.

6 credits in anatomy or zoology as approved by the Department of Physiology; 11 credits in physiology, including thesis; 3 credits in any department of the Medical School, as approved by the Department of Physiology.

In order to fulfill these requirements, Physics 1 or 31, Chemistry 1, and Zoology 1 should be completed before the beginning of the junior year.

MINOR. A minimum of 11 credits in the following courses: Physiology 1, 4, or 17, 4 cr.; Physical Education 107 or 198, 2 cr.; either Agricultural Bacteriology 1 or 4, 5 cr. General chemistry is strongly advised as a prerequisite to physiology and bacteriology.

POLISH

EDMUND ZAWACKI, *A.M.*, Lecturer in Polish, *Acting Chairman*

MAJOR. (a) 24 credits in advance of 1b. (b) Educational Methods 49.

MINOR. (a) 18 credits in advance of 1b. (b) Educational Methods 49.

Educational Methods 49. The Teaching of Polish. 2 or 5 cr. Practice teaching in Polish is not offered in the Wisconsin High School; however, those who elect this course are required to do participation-teaching in another subject.

POLITICAL SCIENCE

JOHN MERRIMAN GAUS, *Ph.D.*, Professor of Political Science, *Chairman*

MINOR. Political Science 7, plus a minimum of 12 credits. In addition, Educational Methods 84, The Teaching of History and the Social Studies.

Educational Methods 84. The Teaching of History and the Social Studies. 2 or 5 cr.

SOCIOLOGY AND ANTHROPOLOGY

JOHN LEWIS GILLIN, *Ph.D., LL.D.*, Professor of Sociology, *Chairman*

MAJOR. Not less than thirty nor more than forty credits in sociology and anthropology, to include Sociology 1 and 2 (6 cr.), 46 (3 cr.), 132 (3 cr.), and 140 (3 cr.). Outside the department: Educational Methods 84 (5 cr.); History 1 (4-6 cr.), 2 (4-6 cr.); 4 (6 cr.); Political Science 7 (3 cr.); Economics 1a (4 cr.); Geography 128 (3 cr.), or Speech 1 (2 cr.) and 3 (3 cr.). (Note also statutory requirements for certification described on page 287.)

MINOR. Sociology 1, 2, and 46 for a total of 9 credits, plus 6 additional approved credits, to make a total of 15, and Educational Methods 84 (2 cr.).

Educational Methods 84. The Teaching of History and the Social Studies. 2 or 5 cr.

SPANISH AND PORTUGUESE

JAMES HOMER HERRIOTT, *Ph.D.*, Associate Professor of Spanish, *Chairman*

MAJOR. 29 credits in advance of 1b, of which at least 2 must be in composition courses under 100, 6 in Spanish 21, and 9 in courses of the 100-group. The required courses are: Educational Methods 81 (5 cr.); Spanish 190, phonetics, (2 cr.) with a grade of *B;* and Spanish 116, or 117, or 141 (2 cr.) with a grade of *B*. Well qualified students may apply to the chairman of the department for permission to write a thesis.

MINOR. 18 credits in advance of 1b. The required courses are: 2 credits in conversation and composition and 3 credits in literature. Minor students are advised (but not required) to elect Spanish 190, and also Educational Methods 81, if not majoring in another foreign language.

Educational Methods 81. The Teaching of Spanish. 2 or 5 cr.

PORTUGUESE. Special arrangements will be made for students interested in majoring or minoring in this language.

SPEECH

ANDREW THOMAS WEAVER, *Ph.D.*, Professor of Speech, *Chairman*

MAJOR. A minimum of 30 credits, including courses 1, 2, 3 or 4, 6, 16 or 25, and 141, to be taken in sequence so far as possible. Courses 1, 6, and 16 should be taken concurrently if possible. Twelve credits must be in courses numbered above 100. In addition to the required 30 credits, five credits must be earned in Educational Methods 198.

MINOR. A minimum of 15 credits in approved courses, including courses 1 and 2. Also, 2 credits in Educational Methods 198.

Educational Methods 198. The Teaching of Speech in High School. 2 or 5 cr.

SPEECH CORRECTION MAJOR. A minimum of 30 credits, including courses 1, 2, 25, 185, 125, 126, 121, and 141. Fifteen credits must be in courses numbered above 100. In addition to the required 30 credits, 6 credits must be earned in Educational Methods 26 and 27. Students pursuing this major are required to complete certain extra departmental courses stipulated by the Wisconsin Department of Public Instruction as necessary for certification in Speech Correction. These include Clinical Testing (Binet) (Education 128, 3 credits); one of the following courses: Education 119, 120 (Child development), Sociology 197 (Personality and social adjustment), Home Economics 109 (Humanics); and 12 credits to be selected from other approved courses.

SPEECH CORRECTION MINOR. A minimum of 15 (14 for majors in Physical Therapy) credits, including courses 1, 25 or 24, 125 or 126, 185, 121. Also Educational Methods 26.

Educational Methods 26. Methods in Rehabilitation of Speech. 3 cr.

Educational Methods 27. Methods in Speech Reading for Children. 3 cr.

ZOOLOGY

MICHAEL FREDERIC GUYER, *Ph.D., LL.D.*, Professor of Zoology, *Chairman*

MAJOR. A minimum of 30 credits (and of 40 grade-points), which will include the following courses: Botany 1, Physiology 1, Zoology 1, 102, 104, 105, 106, and 118 or 126. Students majoring in this department and having a grade-point average of 2.0 or above in zoology at the end of their junior year, are invited to confer with their advisers regarding the privilege of undertaking research work toward a thesis (Zoology 100) during their senior year. (Please note also statutory requirement for certification, described on page 287.)

MINOR. A minimum of 15 credits, chosen from the following list of courses: Zoology 1, 2, 102 or 119, 104, 105, 106, and 118 or 126. Courses 1 and 2, which together constitute a year's work are especially recommended for those taking a minor in this department.

Educational Methods 71. The Teaching of Biology. 2 or 5 cr.

COURSES IN ART EDUCATION AND APPLIED ART

LEADING TO THE DEGREES OF BACHELOR OF SCIENCE (ART EDUCATION) AND BACHELOR OF SCIENCE (APPLIED ART)

WILLIAM HARRISON VARNUM, Professor of Art Education, *Chairman*

The School of Education offers two four-year undergraduate curricula, with teaching or the art professions as the respective objectives. For graduate students with the degree of Bachelor of Science (Art Education) there is a major in Art Education, with related education courses, leading to the degree of Master of Science.

PURPOSE AND PLAN

The Department has three objectives: (1) the training of teachers and supervisors in the art field, (2) the training of students to enter specialized fields of professional art, and (3) offering courses intended for students in other colleges of the University who desire a cultural knowledge of art through studio participation. The Department has several courses designed as service courses for other departments.

Students who desire a four-year course, leading either to teaching or to the art professions, should enroll in the Department of Art Education and in the School of Education at the beginning of the freshman year, although transfers from other colleges of the University, or from accredited art schools and colleges may be made at later periods.

The teacher-training curriculum is planned to equip future teachers and supervisors of art (drawing, painting, design, the art crafts, and commercial art) for public or private schools, teachers' colleges and universities. The Department has well equipped studios and courses guiding the development of the student's individuality and creative ability. The degree of Bachelor of Science (Art Education) and the University Teachers' Certificate are awarded upon the successful completion of the course.

The professional and cultural art curriculum includes fields of concentration as suggestive, rather than mandatory, and grouped as follows: (1) graphic art, (2) design art, (3) plastic art, (4) painting, mural, and portrait, (5) landscape art, (6) related art (costume design and interior decoration). In addition to these fields, there are a number of elective courses, including the crafts of base and precious metals and museum administration. Many courses related to the fields of concentration, and included for credit in the departmental major, offer breadth of professional training only possible in a large institution.

Students may elect this course for its cultural and consumer-training significance and as a valuable contribution to living. Other students registered in the College of Letters and Science, desiring courses in art, may elect for credit, and without special permission of the Dean of that college, the following courses: freshmen and others, Art Education 50 and 51; sophomores and above, 52, 54, 55, 56, 62, 70, 71, 120, 140, 160 and 168, provided, of course, they have satisfied the prerequisites for such courses. Individuals registered in other colleges may secure permission from their respective deans. The elementary courses have been planned to meet the needs of beginners, while those qualified may enter advanced courses.

EQUIPMENT

The Department of Art Education is housed in the Art Education Building, conveniently situated on the upper campus, with studios overlooking Lake Mendota. The building contains one large exhibition and lecture room, painting and life studio, with studios for modeling and ceramics, art metals, etching, designing, school crafts, graduate seminary, and freshman drawing. Other buildings on the campus house the studios for instrumental drawing and lettering, costume design, interior decoration and landscape planning. The Memorial Union has an adequate gallery for contemporary exhibitions, while the Student Workshop gives opportunity for remunerative art activities outside the classroom.

The Department has been granted a Frank Alvah Parsons Scholarship entitling the holder to one year of study in the Paris studios of the New York School of Fine and Applied Arts, and the Tiffany Foundation Scholarship, for one summer of study at Cold Spring Harbor, New York.

ADMISSION REQUIREMENTS

Students intending to enter the Department of Art Education, advantageously may offer one, two, three, or four units of art for admission to the University, as qualified

entrants are given advanced Art Education rating. For students who desire to absolve their foreign-language requirement by passing the intermediate examination for knowledge of one language, it will be of great advantage to acquire and retain a considerable degree of proficiency, in high school, in one foreign language.

REQUIREMENTS FOR GRADUATION
MAJOR IN ART EDUCATION

LEADING TO THE DEGREE OF BACHELOR OF SCIENCE (ART EDUCATION)

Although transfers to the Course in Art Education may be made at the opening of any semester, it is desirable to enroll in the freshman year. A total of 124 credits and 124 grade-points is required for graduation. Of this number, 53 to 68 credits must be taken in departmetal courses or their related options.

The student's point-credit ratio (see page 31) in Art Education must not be less than 1.3. Thus students who fail to maintain the grade-point requirements will be advised to withdraw from the Department.

1. Students must meet the basic requirements outlined below:

ENGLISH: 12 credits as follows: English 1, 6 cr.; English 30 or 33, 6 cr.; English 2, 6 cr.

HISTORY: 10 to 12 credits, to be taken in year courses, unless "100" courses are selected, or

FOREIGN LANGUAGE: Knowledge of one foreign language, evidenced by passing the intermediate examination; or one language throughout four semesters.

NATURAL SCIENCE OR MATHEMATICS: 10 credits in a year course: mathematics, biology, or chemistry.

EDUCATION: 18 credits: Education 73, 3 cr.; Education 74, 3 cr.; Education 75, 5 cr.; Educational Methods 62, 5 cr.; electives in the Department of Education, 2 cr.

2. Departmental Requirements:

ART EDUCATION: 53 to 68 credits; grade-point average, 1.3. Art Education (Drawing) 1, 3 cr.; Art Educ. 50, 3 cr.; Art Educ. 51, 3 cr.; Art Educ. 53, 4 cr.; Art Educ. 55, 3 cr.; Art Educ. 62, 6 cr.

OPTIONAL ELECTIVES: Select from 34 to 49 credits from Art Education or non-departmental courses. Do not select more than a combined total of *ten* credits from non-departmental art courses.

Art Education

	Credits		Credits
Art Ed. 18—Architectural drawing	2	Art Ed. 73—Wrought art metal	2
Art Ed. 52—Watercolor	2	Art. Ed. 120—Pictorial composition	4
Art Ed. 54—Elementary modeling	2	Art Ed. 132—Adv. painting, portraiture	3
Art Ed. 55—Adv. drawing and anatomy	2	Art Ed. 150—Advanced art problems	1-3
Art Ed. 56—Elementary oil painting	3	Art Ed. 155—Museum research	2
Art Ed. 61—Elem. school art and industrial arts	3	Art Ed. 156—Museum administration	2
Art Ed. 63—Commercial contacts	3	Art Ed. 157—Museum apprenticeship	2
Art Ed. 70—Art metal	3	Art Ed. 160—Block printing & etching	2
Art Ed. 71—Pottery	3	Art Ed. 164—Art construction	2
		Art Ed. 168—Advanced modeling	*

NON-DEPARTMENTAL COURSES: Not more than 10 credits to be counted on major.

Home Economics (Related Art)

	Credits		Credits
H.E. 8—House decoration	2	H.E. 95—Weaving	3
H.E. 18—House decoration (lab.)	2	H.E. 114—Advanced interior design	2
H.E. 20—Costume selection	2	H.E. 116—Traditional interior design	4
H.E. 94—Decorative textiles	3	H.E. 121—Advanced costume design	2

Horticulture (Landscape Design)

Hort. 6—Landscape design	3
Hort. 12—Home grounds design	3
Hort. 101—Adv. home grounds design	3
Hort. 102—Public grounds	3
	12

Drawing

Drawing 7—Lettering	2-4
Drawing 8—Adv. lettering	2-4
Drawing 9—Adv. lettering	2-4
	12

Related Courses

Physics 7—Photography	3

All students are advised to elect basic courses in Art History and Criticism.

MAJOR IN APPLIED ART

LEADING TO THE DEGREE OF BACHELOR OF SCIENCE (APPLIED ART)

Although transfers to the Course in Art Education may be made at the opening of any semester, it is desirable to enroll in the freshman year. A total of 124 credits and 124 grade-points is required for graduation. Of this number 54 to 58 credits must be taken in departmental courses or in related optional courses.

1. Students must meet the basic requirements outlined in Sequence A or Sequence B.

A. ENGLISH: 12 credits as follows: English 1, 6 cr.; English 30 or 33, 6 cr.

HISTORY: 10 to 12 credits, to be taken in year courses unless "100" courses are selected.

NATURAL SCIENCE: 10 credits in a year course.

SOCIAL STUDIES: A minimum of 6 credits to be selected from Economics 1a, 4 cr.; Sociology 1 or 2, 3 cr.; Geography 6, 3 cr.

PHILOSOPHY: 10 credits as follows: Philosophy 21, 3 cr.; Philosophy 11, 3 cr.; Elective, 4 cr.

B. FOREIGN LANGUAGE: Knowledge of one foreign language, evidenced by passing the intermediate examination.

ENGLISH: 10 to 12 credits as follows: English 1, 6 cr.; English 30 or 33, 4-6 cr.

HISTORY: 6 credits. A year course in European or American history.

NATURAL SCIENCE: 10 credits in a year course or in "17" courses.

PHILOSOPHY: 6 credits. Philosophy 53, 3 cr.; Electives, 3 cr.

SOCIAL STUDIES: A minimum of 6 credits to be selected from Economics 1a, 4 cr.; Sociology 1 or 2, 3 cr.; Geography 6, 3 cr.

2. MAJOR REQUIREMENTS:

Completion of 54-58 credits in Art Education, and other art courses outlined in the fields set forth below, to include the following: Year courses: Art Ed. 53, 4 cr.; 62, 6 cr.; Art Ed. 50 and 51, 6 cr.; one semester of Art Ed. 52, 3 cr., or one semester of 56, 3 cr.; first semester of 54, 2 cr. and 55, 3 cr.; also, one semester of Art Ed. 120, 2 cr.

The following fields of concentration are suggestive, not mandatory:

1. Graphic Art

	Credits
A.E. (Drawing) 1—Elements of drawing	3
*A.E. 50—Freehand drawing and perspective	3
*A.E. 51—Freehand drawing, light and shade	3
‡A.E. 55—Adv. drawing and anatomy	6
A.E. 160—Block printing and etching	2
Phys. 7—Photography	3
	20

2. Design Art

	Credits
A.E. (Drawing) 7, 8, 9—Lettering	6
*A.E. 62—Creative design	6
A.E. 63—Commercial contacts	6
A.E. 140—Stage design	4
‡A.E. 120—Pictorial composition	4
A.E. 155—Museum research	2
Comm. 15—Retail advertising	2
Journ. 4—Adv. typography	1
Journ. 10—News photography	1
	32

3. Plastic Art

‡A.E. 54—Modeling	4
A.E. 71—Ceramics	6
A.E. 168—Adv. modeling	6
	16

4. Painting: Mural and Portrait

†A.E. 52—Water color painting	4
†A.E. 56—Oil painting	6
A.E. 132—Portrait and decorative painting	6
A.E. 164—Art construction	2
	18

Electives & Crafts

A.E. 1—Drawing	3
A.E. 61—Elem. school arts and industrial arts	6
A.E. 70—Art metal	6
A.E. 73—Wrought metal	2
A.E. 150—Adv. art problems	6
A.E. 156—Museum administration	2
A.E. 157—Museum apprenticeship	2
	27

5. Landscape Art

Hort. 6—Landscape design	3
Hort. 12—Home grounds design	3
Hort. 101—Adv. home grounds design	3
Hort. 102—Public grounds	3
C.P. 101—City planning	2
Agric. Econ. 192—Rural regional planning	3
	17

6. Related Art

A.E. 18—Architectural drawing	2
H.E. 8—House decoration	2
H.E. 18—House decoration (lab.)	2
H.E. 20—Costume selection	2
H.E. 94—Decorative textiles	3
H.E. 95—Weaving	1-3
H.E. 114—Adv. interior design	2
H.E. 116—Traditional interior design	4
H.E. 121—Adv. costume design	2
	20-22

Orientation

*A.E. 53—Art digest	4

3. Elective Requirements:

Additional requirements (approximately 18 credits) to bring the total credits to 124 are to be selected from the following list:

	Credits
Anatomy 39	4
Art History and Criticism (to include 54)	9
Classics 41	2-3
Commerce 13	3
Comp. Literature 67	2
Comp. Literature 68	2
English 134	3
History 113	3-4
History 124	3-4
History 134	3
Music 20	4
Philosophy 41	3
Sociology 139	3
Speech 4	3
Speech 19a, 119	4

*Required year courses
‡Required courses, one semester
†Required courses, one semester of either
*Required year courses.

COURSE IN PHYSICAL EDUCATION AND ATHLETIC COACHING FOR MEN

LEADING TO THE DEGREE OF BACHELOR OF SCIENCE (PHYSICAL EDUCATION)

G. S. LOWMAN, CHAIRMAN, PROFESSOR OF PHYSICAL EDUCATION

A total of 124 credits and 124 grade-points is required for graduation from this course.

In the organization of the professional course in physical education and athletic coaching every effort has been made to meet the great demand for a standard four-year undergraduate course which will produce independent and responsible directors and instructors in the various phases of this field. The demand in the educational field requires men to be especially fitted to coach, direct, and supervise all forms of games and athletics, as well as to teach the formal and corrective phases of physical education.

The course is not merely a practice course, but has for its foundation work in education and in the fundamental sciences which gives the individual a basis for the application of the technical work. In addition to the work in education and science, courses in history, English, and other academic subjects are included to afford the broad cultural background so essential to individuals who expect to hold the important positions in this particular field.

The department reserves the right to transfer to some other course, at the close of the first semester, those students who do not show adaptability in this field.

In addition to the undergraduate curriculum outlined below, opportunity is offered for graduate work leading to the degree of Master of Science in Physical Education. (See Graduate Bulletin.)

FRESHMAN YEAR

First Semester	Credits	Second Semester	Credits
Engl. 1a—Freshman composition	3	Engl. 1b—Freshman composition	3
*Elective (one of three groups)	3-4	*Elective (one of three groups)	3-4
Zoology 1—Animal biology	5	Zoology 2—General zoology	5
Speech	2	Speech	2
Phys. Ed. 6—Theory and practice	2	Phys. Ed. 7—Theory and practice	2
	15-16		15-16

SOPHOMORE YEAR

Chem. 1a—General chemistry	5	Chem. 1b, or Physics 17 or 61	5
Anatomy 39—Human anatomy	4	Physiology 2	4
*Elective (one of three groups)	3	*Elective (one of three groups)	3
Phys. Ed. 8—Theory and practice	3	Phys. Ed. 16—First aid and safety education	2
		Phys. Ed. 9—Theory and practice	2
	15		16

Note: Three to four credits of electives in the senior year must be academic subjects

*Every student shall be required to meet one of the following group requirements:

1. Twelve credits in history, geography, and the social studies as follows: six credits in a year course in European or American history, and six credits made up of three in political science (Pol. Sci. 7) and three in economics, sociology, or geography (exclusive of Geography 1, 2, and 140) (12 credits).
2. Six credits in introductory philosophy (Phil. 21) and logic (Phil. 11) or 8 in mathematics, or the completion of either Mathematics 1b or Mathematics 3b.
3. (a) Ten credits in the literature of a foreign language; or
   (b) The passing of a proficiency test in one language; or
   (c) Intermediate knowledge of two foreign languages.

JUNIOR YEAR

Phys. Ed. 119a—Physical examinations and therapeutics	3	Phys. Ed. 119b—Physical examinations and therapeutics	3
Phys. Ed. 58—Human mechanics	2	Phys. Ed. 71—Camp administration and scouting	3
Phys. Ed. 107—Physiology of exercise	2	Phys. Ed. 11—Theory and practice	3
Phys. Ed. 59—Nature, function, and organization of play	3	Educ. 74—The school and society	3
Phys. Ed. 10—Theory and practice	3	Electives	4
Educ. 73—The child: his nature and his needs	3		
	16		16

SENIOR YEAR

Phys. Ed. 164—School health and hygiene	4	Phys. Ed. 168—Organ. and admin. of physical education	2
Phys. Ed. 12—Theory and practice	3	Phys. Ed. 13—Theory and practice	3
Educ. 75—The nature and direction of learning	5	Educ. Methods 70—The teaching of physical education	5
Electives	4	Electives	5-6
	16		15-16

DEPARTMENTAL ELECTIVES

Phys. Ed. 166—Physical therapy	2-3	Physiological Chemistry 114	3
Phys. Ed. 80—Community recreation	2		

MINOR IN PHYSICAL EDUCATION (MEN)

This minor is offered to qualify men to assist in the general physical education program, and to coach and supervise athletics in high schools and colleges in connection with the teaching of some academic subject; it may be elected by men students majoring in academic fields in the School of Education. Practice work, without academic credit, may be arranged at the discretion of the department, according to the student's needs. The completion of this minor does not entitle one to a special physical education teaching license in Wisconsin.

	Credits
Physical Education 6, 7, 8, and 9—Theory and practice of physical activities	8-9
Physical Education 59, Nature and function of play	3
or	
Physical Education 107, Physiology of exercise	2
Physical Education 71, Camp administration and scouting	3
Physical Education 17, Athletic training and first aid	2
Physical Education 168, Organization and administration of physical education	2
Educational Methods 70, The teaching of physical education	2
	20

COURSE IN PHYSICAL EDUCATION FOR WOMEN

LEADING TO THE DEGREE OF BACHELOR OF SCIENCE (PHYSICAL EDUCATION)

BLANCHE M. TRILLING, CHAIRMAN, PROFESSOR OF PHYSICAL EDUCATION

A total of 124 credits and 124 grade-points is required for graduation from this course.

In the organization of the course every effort has been made to meet the great demand for a standard four-year course in physical education which will produce independent and responsible directors and instructors in the various phases of physical education.

The course is not merely a technical course but has, as its foundation, work in education and in the fundamental sciences which gives the individual a basis for the prac-

tical work. In addition to the work in education and science, courses in history, English, and other academic subjects are included to afford the broad cultural background so essential to individuals who expect to hold the important positions in this particular field.

It is usually necessary for a transfer student in this course to spend three years in study, unless entering from an accredited course in physical education. A student is on probation with the department for her first year. At the end of that time, or later, if she does not meet the departmental standard for scholarship, general aptitude, health, and ability, the department reserves the right to ask the student to withdraw from the department.

GRADUATE WORK. In addition to the undergraduate curriculum, outlined below, opportunity is offered for graduate study leading to the degree of Master of Science in Physical Education. The degree of Doctor of Philosophy may be earned in the Department of Education where the major study may be in fields of special interest to the physical educator. The necessary minor may be in areas of individual interest,—such as education, psychology, anatomy, physiology. For further information see the bulletin of the Graduate School.

GENERAL MAJOR

I. SPECIFIC REQUIREMENTS

a. Academic or Non-Professional Courses

	Credits
English 1a and 1b	6
History or Mathematics	6-8
Chemistry 1a and 1b	10
English, Social Science, Foreign Language Option	6-10
Speech (voice training)	2
Physics 65	6
Zoology	3
Human Anatomy	6
Physiological Chemistry	3
Physiology	8
Hygiene or Health Education	2
Education Courses	18
Academic elective	3
	79-85

b. Professional Courses

P.E. 56—Kinesiology	3
P.E. 175 and 176—Therapeutic gymnastics	4
P.E. 118—Physical diagnosis	2
*P.E. 168—Organization and administration	2
Thesis or Thesis Course	4
	15

c. Special Technique Courses

P.E. 20—Practice in dancing, gymnastics, and sports	0-8
P.E. 31, 32, 33—Principles of coaching	6
P.E. 42—Theory and practice of play	2
P.E. 43—Rhythm and elementary dance forms	1-2
P.E. 49—Rhythm and elementary dance forms	1
	10-19

*P.E. 167—Current Problems—offered in the summer, may be substituted for this requirement.

II. ELECTIVES TO COMPLETE 124 CREDITS

a. General Courses (See Letters and Science Bulletin)

b. Professional Courses

P.E. 16—First aid	1
P.E. 59—Nature and function of play	3
P.E. 60—Rhythmic form and analysis	1
P.E. 81—Camp leadership	2
P.E. 130—Tests and measurements in physical education	2
P.E. 133—Accompaniment for contemporary dance	2-3
P.E. 134—Accompaniment for contemporary dance	2-3
P.E. 146—Philosophy and theory of dance	2-3
P.E. 159—Play, recreation and leisure time problems	2
P.E. 160—Advanced rhythmic form and analysis	2-3
P.E. 165—Dance composition	2-3
P.E. 180—Topical course	—
P.E. 181—Thesis course for dance majors	2-4
Physiology 117—Problems in applied physiology	2
Physiology 200—Research in physiology	

The student must fulfill one of the following three-group requirements:

1. The passing of a proficiency test in one language or of intermediate tests in two languages or ten credits in the literature of a foreign language.

2. Six credits in English in advance of English 1 or six credits in Comparative Literature.

3. Three credits in political science and three in economics, or sociology, or geography (excluding Geography 1, 2, and 140.)

(See bulletins of the Summer Session for other courses, offered in summer sessions only.)

DANCE MAJOR

The demand today for teachers of dance who have been trained especially for this field must be recognized. The more intellectual aspects of the dance and its increasing advance into the fields of psychology, art, and education make it a study well worthy of academic recognition. It is with the hope of fitting teachers not only with a comprehensive view of dance as such, but also with the necessary general background which must accompany such preparation, that this course was established.

I. REQUIRED COURSES

a. Academic or Non-Professional Courses

	Credits
English 1a and 1b	6
English literature	6
Science	
General (biology preferred)	10
Special (physiology, anatomy)	10
History or mathematics	6-8
Psychology 1	3
Education	18
Philosophy	9
Speech	10
Music	5-10
Art History	6

b. Special (Departmental) 23 credits required. The following courses are preferred:

*P.E. 20—Practice in dancing, gymnastics	8
P.E. 42—Theory and practice of play	2
P.E. 56—Kinesiology	3
P.E. 60—Rhythmic form and analysis	1
P.E. 133—Accompaniment for contemporary dance	2-3
P.E. 134—Accompaniment for contemporary dance	2-3
P.E. 146—Theory and philosophy of dance	3
P.E. 160—Advanced rhythmic form and analysis	2
P.E. 168—Organization and administration of physical education	2
P.E. 175 and 176—Therapeutic gymnastics	4
P.E. 165—Dance composition	3
Thesis or Thesis Course	4

II. ELECTIVES TO COMPLETE 124 CREDITS

a. General Courses (See Letters and Science Bulletin)

b. Professional Courses (See electives under General Major, page 305.)

Because of the heavy activity program carried without academic credit, it is strongly urged that four years and two summers or five years be given to the course. This enables the student to elect other related subjects and to start studying for a master's degree. In the case of students transferring from other institutions, three years of residence work are usually required to meet the technical standards of this department.

CERTIFICATE IN PHYSICAL THERAPY

Students completing a major in physical education may become candidates for the *Certificate in Physical Therapy* which is granted in the Medical School. For specific requirements write to Dr. E. A. Pohle, Medical School.

COURSES FOR TEACHERS OF AGRICULTURE AND HOME ECONOMICS

The four-year courses in Agriculture and in Home Economics are given in the College of Agriculture. Students who are planning to teach these subjects, and to qualify for the University Teachers' Certificate, *should register in the School of Education at the beginning of the junior year.* Detailed information concerning all the courses offered may be found in the special bulletins of the College of Agriculture.

Graduates of the four-year Course in Agriculture and of the Course in Home Economics who have complied with the regulations relative to registration and to approval of major and minor subjects will be entitled to receive the University Teachers' Certificate upon fulfillment of the special professional requirements indicated below.

SPECIAL STATUTORY REQUIREMENTS

For teachers of science, the social studies, and agriculture.

Chapter 397, Laws of 1935, State of Wisconsin, reads as follows: "In granting certificates for the teaching of courses in economics, the social studies, and agriculture, adequate instruction in cooperative marketing and consumers' cooperatives shall be required." See *Agricultural Economics 127,* Cooperative marketing (first semester, second semester, and summer session).

*P.E. 20 includes dance technique and electives in golf, horseback riding, bowling, softball, tennis, archery, basketball, hockey, stunts and tumbling, gymnastics.

AGRICULTURE AND EDUCATION

JOHN AMBROSE JAMES. *B.S.*, Professor of Agricultural Education, *Chairman*

Students in the College of Agriculture who wish to prepare for the teaching of agriculture in secondary schools must complete, in addition to a major, the general requirements of the Long Course in Agriculture and the eighteen credits in education required for the University Teachers' Certificate as outlined below. The major consists of a minimum of fifteen elective credits in any department of the College of Agriculture. Students are advised to follow the elective list furnished by the Department of Agricultural Education in order to have proper technical courses.

Students who receive the degree of Bachelor of Science (Agriculture and Education), and who have satisfied the following requirements, are entitled to receive the University Teachers' Certificate and a license to teach, issued by the State Superintendent: (a) registration in the School of Education at the beginning of the junior year, (b) the recommedation of the College of Agriculture, (c) the completion of the following courses:

	Credits
Educ. 73—The child: his nature and his needs	3
Educ. 75—The nature and direction of learning	5
Agr. Educ. 1—Rural education	2
Agr. Educ. 128—Program building in vocational agriculture	3
Educ. Methods 50—Teaching of agriculture (senior year)	5
	18

Educational Methods 50. The Teaching of Agriculture. 1-5 cr.

HOME ECONOMICS AND EDUCATION

FRANCES ZUILL, *M.A.*, Professor of Home Economics, *Director*

MAJOR. In the general education major, the vocational education major, the food and nutrition major, or the textile and clothing major, the minimum requirements in home economics subjects taken during the junior and senior years are 31 credits, four of which may be the thesis. The special course requirements vary with the major, but not more than 40 home economics credits exclusive of 2, 9, and 109 may be counted toward the 124 credits required for graduation. For details see the Home Economics bulletin. The following courses are required for the teachers' certificate:

	Credits
Educ. 74—The school and society	3
Educ. 75——The nature and direction of learning	5
**Educ. Methods 52—Teaching of home economics (senior year)	5
*Electives in the Department of Education	5
	18

MINOR. A minor may be taken in foods and nutrition, textiles and clothing, related art, or housing problems, including 10 to 20 credits in closely related courses.

(1) A teaching minor in foods and nutrition includes Educational Methods 52 and Home Economics 3, 4, and 6, to make 15 to 20 credits in home economics subjects.

(2) A teaching minor in textiles and clothing includes Home Economics 2, 5, 10, 11, 50, 97, Educational Methods 52, and other courses in home economics to complete 20 credits.

*May include a course in the teaching of the minor subject, for two credits.
**Candidates for the University Teacher's Certificate who choose to elect Educational Methods 156 for 4 credits will elect Educational Methods 52 for 3 credits only.

(3) A teaching minor in related art is 10 credits including Home Economics 2 or its equivalent, and courses elected from the following: 8, 18, 20, 95, and 194.

Educational Methods 52. The Teaching of Home Economics. 3 or 5 credits.

Educational Methods 156. The Teaching of Home Economics in the Part-time School and Rural Vocational Centers. 2 cr. lect.; 2 cr. off-campus teaching.

Educational Methods 188. Seminar in Home Economics Education. 2 cr.

DEPARTMENTS OF INSTRUCTION

Abbreviations used in the announcement of courses:

Yr—a continuous course extending through two semesters
I—course given during the first semester
II—course given during the second semester
I, II—semester course given each semester
cr—number of credit hours per semester
*—credit to be arranged

Courses numbered under 100 may be credited only by undergraduates; those in the 100-group may be credited by both undergraduates and graduates; those in the 200-group are ordinarily open only to graduates.

ART EDUCATION

Professor Varnum, *Chairman*; Associate Professors Stebbins, Miss Wilson; Assistant Professors Mrs. Annen, Doke, Livermore; Instructors McCloy, Van Koert; Lecturers Brown, Moulton.

The following courses are open to Letters and Science students in the same way as regular Letters and Science subjects: Art Education 50, 51, open to freshmen and others; Art Education 52, 54, 55, 56, 62, 70, 71, 120, 140, 160 and 168 open to sophomores and upperclassmen. Other courses are open to election by Letters and Science students upon approval of the Dean of that College.

Students who desire to supplement by studio participation, courses offered in other departments, should enroll in the following courses: Speech 19 and Art Education 140, Stage design; Art History 101 and Art Education 160, Block printing and etching; Art History 50 or 54 and Art Education 50, Freehand drawing. The first semester of Art Education 62 is a desirable election for Home Economics majors.

18. Architectural Drawing. II; 2 cr. Prerequisite: Art Education (Drawing) 1. Mr. Moulton.

50. Freehand Drawing and Perspective. I; 3 cr. Introduction to pictorial expression. Open to freshmen. Lab. fee $1.25. Mr. Stebbins, Mr. VanKoert, Mr. McCloy.

51. Freehand Drawing: Light and Shade. II; 3 cr. Prerequisite: Art Education 50. Lab. fee $2.75. Mr. Stebbins, Mr. VanKoert, Mr. McCloy.

52. Watercolor Rendering. Yr; 2 cr. Prerequisite: Art Education 51. Lab. fee $1.75. Mrs. Annen.

53. Art Digest: Orientation. Introduction to the art education field. Yr; 2 cr. Open to art education freshmen. Mr. Varnum

54. Elementary Modeling. Yr; 2 cr. Introduction to plastic expression. Lab. fee per semester $6.00. Miss Wilson.

55. Advanced Drawing and Anatomy. Yr; 3 cr. Prerequisite: Art Education 51 or consent of instructor. Lab. fee $3.50 per semester. Mr. Stebbins.

56. Elementary Oil Painting. Yr; 3 cr. Prerequisites: Art Education 50 and 51. Lab. fee $2.00 per semester. Mr. McCloy.

61. Elementary School Art and Industrial Arts. Yr; 3 cr. Prerequisite: Junior standing. Lab. fee $6.00 per semester. Miss Wilson.

62. Creative Design. Yr; 3 cr. Prerequisite: Art Education 50. First semester is recommended for Home Economics majors with a prerequisite of Home Economics 2, introduction to related arts. Lab. fee $1.50 per semester. Mrs. Annen.

63. Commercial Contacts. Yr; 3 cr. Prerequisites: Art Education 7, 50 and 62. Lab. fee $1.50 per semester. Mr. VanKoert.

70. Art Metal. Yr; 3 cr. Problems in copper, silver, gold, pewter. Prerequisite: Art Education 62. Lab. fee $5.00 per semester. Mr. VanKoert.

71. Elementary Pottery. Yr; 3 cr. Prerequisite: Art Education 62. Lab. fee $6.00 per semester. Miss Wilson.

120. Pictorial Composition. I; 2 cr. Prerequisite: Consent of instructor. Lab. fee $2.00. Mrs. Annen.

123. Industrial Art Design. II; 2 cr. Prerequisites: Drawing 1, Art Ed. 51 and 62 or consent of instructor. Acquaintance with selected materials; tools, technical processes related to these materials; methods of the industrial designer with applications. Lab. fee $1.00. Mr. Varnum.

125. Illustration. Yr; 2 cr. Prerequisite: Art Education 55. Mr. Stebbins.

132. Advanced Painting and Portraiture. Yr; 3 cr. Prerequisite: Art Education 56. Lab. fee $4.50 per semester. Mr. McCloy.

140. Stage Design. Yr; 2 cr. First semester: Principles of design in relation to scenic designing. Individual and group presentations on model stages. Mr. Varnum. Second semester: Application of these principles; scene construction and lighting in the University Theatre. Prerequisite: Art Education 62. Also open to students registered in or with credit in Speech 19a or 19b, or graduate standing in Speech. Fee $1.50. Mr. Lane, Mr. Buerki.

150. Advanced Art Problems. Yr; 1-3 cr. Advanced work in: Painting, lab. fee $3.50; Art metal, lab. fee $5.00; Commercial contacts, lab. fee $1.50; Pottery, lab. fee $6.00; Watercolor, lab. fee $1.75. Open to seniors and graduate students. Staff.

155. Design Research. II; 2 cr. Prerequisite: Elementary course in design. Lab. fee $2.00. Mrs. Annen.

156. Museum Administration. I; 2 cr. Prerequisite: Junior standing. Offered irregularly. Mr. Brown.

157. Museum Apprenticeship Course. II; 2 cr. Prerequisites: Art Education 156 and senior standing. Offered irregularly. Mr. Brown.

160. Block Printing and Etching. II; 2 cr. Prerequisites: Art Education 62 and junior standing. Lab. fee $4.50. Mr. Varnum.

164. Art Construction. Yr; 2 cr. Prerequisites: Junior standing and consent of instructor. Lab. fee $2.50 per semester. Mr. McCloy.

168. Advanced Modeling. Yr; * Prerequisite: Art Education 54 or consent of instructor. Lab. fee $3.00 per cr. Miss Wilson.

180. Advanced Independent Study. Yr; * Prerequisite: Senior standing. Staff.

210. Seminary, Art Education. Yr; 2 cr. Prerequisite: Graduate standing or teaching experience. Mr. Varnum.

211. Experimental and Research Problems in Art Education. Yr; 2 cr. Prerequisites: Graduate standing and major in art education. Mr. Varnum, Staff.

TEACHERS' COURSE

The Teaching of Art. See Educational Methods 62, page 317.

DRAWING

Assistant Professors Doke and Livermore; Lecturer Moulton

This is a duplicate listing of a portion of the courses offered by the Department of Drawing and Descriptive Geometry in the College of Engineering.

1. ELEMENTS OF DRAWING. I, II; 3 cr. Working drawings, third angle projection, lettering, tracing, and blueprinting. Open to freshmen. Two sections especially adapted to students in Art Education. Lab. fee $1.00. Mr. Livermore, Mr. Moulton.

7. FREEHAND LETTERING. I, II; 1 or 2 cr. Construction and composition of Classic Roman capitals, lower-case letters, English Gothic, black letter and modern script. Special emphasis given to the choice of lettering styles in advertising design. Lab. fee $.75. Mr. Doke.

8. ADVANCED FREEHAND LETTERING. I, II; 2 cr. Continuation of Course 7, which is prerequisite. Lab. fee $.75. Mr. Doke.

9. ADVANCED FREEHAND LETTERING. I, II; 2 cr. Continuation of Course 8, which is prerequisite. Lab. fee $.75. Mr. Doke.

EDUCATION

PROFESSORS ANDERSON, BARR, EDGERTON, FOWLKES, TORGERSON, WILLING, *Chairman*; ASSOCIATE PROFESSORS JENSEN, MACKENZIE, RAGSDALE; ASSISTANT PROFESSORS LEE, LITTLE, ROTHNEY, SHEATS; LECTURERS ENGEL, MCCARTY, WALLER.

Students below the junior class are not admitted to courses in the Department of Education, without the written permission of the Chairman of the Deparment. Students elecing courses in Education should have taken introductory or survey courses in Biology, Psychology, and Sociology. Graduate students in Education may be required to meet the academic requirements listed in the *Pre-Education Sequences* (pages 285-286) for the degree of *Bachelor of Science* (*Education*) and the *University Teachers' Certificate.* Requirements in Education for this *Certificate* constitute prerequisites for graduate work in Education.

Courses 73, 74, and 75 are regarded as elementary, and as introductory to the advanced courses offered by the department. These courses are not open for election by graduates of professional courses of normal schools and teachers' colleges without special action by the department. Courses in the 200-group are open to qualified seniors who obtain the consent of the instructor.

MAJOR. Candidates for a bachelor's degree who elect education as a major must meet the following specific requirements:

1. Twenty-four credits in education, including courses 73, 74, 75, and a minimum of two advanced courses in one of the following divisions of the Department of Education:

I. Educational Theory and Criticism
II. Social and Economic Foundations of Education
III. Psychological Foundations of Education
IV. Measurement, Statistics, and Clinical Techniques
V. School Administration
VI. Guidance and Special Personnel Services
VII. Supervision, Curriculum, and Instructional Procedures
VIII. Adult, Vocational, and Industrial Arts Education

A minimum of 15 credits in education must be completed in residence at Wisconsin, and not more than 6 credits may be elected before the attainment of junior standing. Courses in the Department of Educational Methods cannot be counted toward a major in the Department of Education. The undergraduate thesis in education has been discontinued.

2. They must meet the University requirements for a teaching major, with the exception of a thesis, in one academic department other than education, or for teaching minors in two academic departments other than education. (These requirements should be fulfilled in departments whose subjects are taught in elementary or secondary schools.) A student must earn as many grade-points as credits in these departments.

Students who transfer from other institutions must complete a minimum of two advanced courses in their major or one advanced course in each of their minor subjects at the University of Wisconsin, and must earn as many grade-points as credits in the courses pursued in majors or minors at this University.

See pages 283-287 for the Wisconsin High School, Field Services, Educational Laboratories, Teachers' Certificates, etc.

ELEMENTARY COURSES

Education 73 should be taken before Education 75. Education 74 may be taken at any time.

73. THE CHILD: HIS NATURE AND HIS NEEDS. I, II; 3 cr. Behavior and development of children, with emphasis on the junior and senior high-school levels. Prerequisite: Junior standing. *Required of candidates for the University Teachers' Certificate.* Fee $1.00. Mr. Jensen, Mr. Little, Mr. Rothney.

74. THE SCHOOL AND SOCIETY. I, II; 3 cr. Overview of the American public school system, with special reference to the determining influences exercised by government, social groups, teachers, and current social conditions. Prerequisite: Junior standing. *Required of candidates for the University Teachers' Certificate.* Fee $.50. Mr. Anderson, Mr. Fowlkes, Mr. Lee, Mr. Sheats, Mr. Willing.

75. THE NATURE AND DIRECTION OF LEARNING. I, II; 4 or 5 cr. (*4 cr.* applies only to majors in Course in Physical Education—Women, and includes *1 cr.* in educational practice. *5 cr.* applies to all others, and includes *2 cr.* in educational practice.) Should be preceded by *Education 73. Required of candidates for the University Teachers' Certificate.* Mr. Barr, Mr. Lee, Mr. Little, Mr. Mackenzie, Mr. Ragsdale, Mr. Rothney.

INDEPENDENT READING

180. INDEPENDENT READING. I, II; credit to be arranged. Open to upper-group students of senior rank. Staff.

GENERAL COURSES FOR GRADUATE STUDENTS

Courses numbered 201, 202, 203, and 204 are required of candidates for the Master's degree in Education.

200. RESEARCH OR THESIS. I, II; credit to be arranged. Staff.

201. TECHNIQUE OF EDUCATIONAL RESEARCH. I; 3 cr. Current educational research literature, an interpretation of research methods, and statistical techniques commonly used. Mr. Little, Mr. Torgerson.

202. FOUNDATIONS OF EDUCATION. II; 3 cr. The process of interaction between the individual and his physical and social environment, based upon materials from the fields of biology, psychology, and sociology. Mr. Ragsdale, Mr. Sheats.

203. DIRECT PUPIL SERVICES IN THE MODERN SCHOOL. I; 3 cr. Survey of the direct pupil services of the modern school, supplied by supervisors, teachers, school nurses, curriculum specialists, guidance workers, clinical and school psychologists. Mr. Barr, Mr. Lee.

204. GENERAL ADMINISTRATIVE PROBLEMS OF THE MODERN SCHOOL. II; 3 cr. Local school organization and administration. Mr. Anderson, Mr. Fowlkes.

299. DEPARTMENTAL SEMINARY. I, II. (Required of all candidates for the degree of Doctor of Philosophy in Education.) Staff.

Starred (*) courses are basic surveys.

I. EDUCATIONAL THEORY AND CRITICISM

106. COMPARATIVE EDUCATION. II; 2-3 cr. Survey of foreign school systems, especially those of France, Germany, England, Italy, and Russia. Mr. Willing.

108. History of Educational Theory and Criticism. I; 3 cr. Survey of the origins and growths of certain broad criteria of education. Reading and discussion of educational classics. Education 104, though not a prerequisite, is a desirable foundation for this course. Offered in 1941-42 and in alternate years. Mr. Willing.

*209. Modern Systems of Psychology and Education. II; 3 cr. Critical study of the educational implications of conflicting psychological theories and systems; particular reference to learning theories, factor analysis, behaviorism, psychoanalysis and Gestalt. Prerequisite: Education 118 or 202. Mr. Ragsdale.

215. Seminary, Educational Theory and Criticism. II; 2 cr. Special assignments and reports in current educational philosophy. Mr. Willing.

*217. Modern Philosophies of Education. I; 3 cr. Critical comparison of present-day schools of thought on the nature, objectives, and functions of American education. Previous introductory or historical courses in philosophy will be of advantage to students taking this course. Mr. Willing.

II. SOCIAL AND ECONOMIC FOUNDATIONS OF EDUCATION

104. Social History of Education. I; 3 cr. Survey of school development as determined from early times to the present by family, social class, vocation, commerce, recreation, war, religion, and politics. Previous courses in the history of western civilization are recommended. Offered in 1940-41 and in alternate years. Mr. Willing.

*115. Social Issues and Education. I; 2 or 3 cr. Contemporary social issues which affect the school as revealed through the study of current materials in professional journals and non-technical publications in the social sciences. Students electing this course should have taken Education 74 or an introductory course in Sociology. Mr. Sheats.

*268. The Financial Support of Public Education. I; 3 cr. Contemporary bases for raising and distributing federal, state, and local funds for public education. Detailed analyses of financial support of public education in one state. Previous courses in economics, especially in finance, recommended. Not offered 1940-41. Mr. Anderson, Mr. Fowlkes.

III. PSYCHOLOGICAL FOUNDATIONS OF EDUCATION

107. Motor Learning. I; 3 cr. The nature of motor abilities; motor rhythm; the acquisition of motor skills, especially physical education activities, manual and industrial arts, typing and handwriting. Prerequisite: Education 75. Fee $2.00. Mr. Ragsdale.

*118. Human Abilities and Learning. I; 3 cr. The psychological principles controlling the solution of educational problems; the nature and distribution of abilities; principles of learning. Prerequisite: Education 75. Mr. Ragsdale.

*119. Child Development (Infancy, Early Childhood). I; 3 cr. An advanced course dealing with the behavior and development of children up to adolescence. Throughout especial attention will be paid to recent experimental findings. (Not open to students who have had, or are taking, Psychology 147.) Fee $.50. Mr. Jensen.

*120. Child Development (Adolescence). II; 3 cr. Physical, physiological, social, and mental changes which characterize the transition from childhood to adult life; underlying causes; extent to which these changes are predictable and controllable. Mr. Jensen.

125. The Exceptional Child (Nature of). II; 3 cr. The psychological nature of mental, social, and physical deviates. Not offered 1940-41. Mr. Little.

249. Seminary, Educational Psychology and Child Development. Yr; 2 cr. Mr. Jensen, Mr. Ragsdale.

IV. MEASRUEMENT, STATISTICS, AND CLINICAL TECHNIQUES

128. Clinical Testing (Binet). II; 3 cr. Instruction and practice in the use of revised Binet scales of intelligence. Fee $.50. Mr. Little.

*130. Evaluation in Education (Individualized). I; 3 cr. A basic course in the evaluation of pupil capacities, aptitudes, traits, and behavior patterns and their significance for education. For classroom teachers and counsellors. Mr. Torgerson.

*131. Evaluation in Education (Groups). II; 3 cr. A basic course in the evaluation of instruction in school systems, grades and classes. Of especial interest to administrators and supervisors. Mr. Torgerson.

133. Remedial Reading. I; 3 cr. Scientific investigations in reading and their implications for a corrective reading program in the elementary school, high school, or college. Mr. Torgerson.

134. Clinical Practice in Reading. II; 2 cr. Case studies of reading problems, clinical practice in the use of tests and apparatus in the diagnosis and correction of reading difficulties. Mr. Torgerson.

138. Clinical Testing (Performance). II; 2-3 cr. Performance and aptitude testing. Advanced practice in the use and clinical interpretation of individual tests of mental abilities. Fee $1.00. Not offered 1940-41. Mr. Little.

212. Statistical Method Applied to Education. I; 3 cr. Statistical techniques used in educational research. Mr. Little.

225. Test Construction. II; 3 cr. The improvement of the written examination. Critical evaluation of tests and a study of the technique of test construction. Prerequisites: Educ. 130, 131, and 212. Mr. Torgerson.

230. Seminary, Measurement and Clinical Practice. I, II; 2 cr. Mr. Little, Mr Rothney, Mr. Torgerson.

V. SCHOOL ADMINISTRATION

*261. Principles of Educational Administration. I; 3 cr. National, state, and county school organization and administration. Mr. Anderson, Mr. Fowlkes

264. Seminary, Secondary School Organization and Administration. II; 2 cr. Prerequisite: Education 204 or consent of instructor. Offered in 1941-42 and in alternate years. Mr. Mackenzie.

271. The Business Management of Local Schools. II; 3 cr. Financial accounting; unit costs; financial reports; insurance; depreciation; budgetary procedure and school budgets. Mr. Fowlkes.

272. School Buildings and School-Building Programs. II; 2-3 cr. Not offered 1940-41. Mr. Fowlkes.

278. Seminary, School Administration. Yr; 2 cr. Mr. Fowlkes.

VI. GUIDANCE AND SPECIAL PERSONNEL SERVICES

*181. Technique of Guidance. II; 2-3 cr. Methods and standards of interviewing, counseling, case study, testing, recording, orientation, exploration, occupational study, educational information, training, placement, follow-up, and supplementary guidance and personnel techniques. Section 1 (undergraduate students); Section 2 (graduate students). Fee $.50. Mr. Edgerton.

182. Clinical Studies in Guidance. II; 2-3 cr. Individual study of normal children and those who have difficulties in and out of school. In addition to the class meetings, students must keep at least one afternoon a week free for work with children. Mr. Rothney.

183. Job and Occupational Analysis. I; 2-3 cr. Basic principles, types, and methods of purposeful analysis appropriately applied to personnel, guidance, and educational problems. Selected field studies of occupational conditions, opportunities, and requirements. Mr. Edgerton.

*184. Principles of Guidance. I; 2-3 cr. Policies and practices of organized guidance for school and college levels. Social, educational, and vocational adjustment problems and needs of urban and rural youths. Section 1 (undergraduate students); Section 2 (graduate students). Fee $.50. Mr. Edgerton.

284. Seminary, Educational, Social, and Vocational Guidance. Yr; 2 cr. Analysis of trends and research in individual counseling, exploratory activities, occupational studies, testing procedures, cumulative records, case studies, career preparation, placement, and employment supervision. Mr. Edgerton.

VII. SUPERVISION, CURRICULUM, AND INSTRUCTIONAL PROCEDURES

123. Early Childhood Education. I, II; 2-3 cr. A study of the development and education of children from infancy through the fifth year. Emphasis is placed upon practical considerations. Mr. Jensen.

140. Elementary School Curriculum. II; 3 cr. A foundation course in elementary education. Basic concepts of elementary education; the relation of the elementary pupil to the curriculum; newer developments in each area. Mr. Lee.

141. Secondary School Curriculum. I; 2-3 cr. Social function of the secondary school; recent developments; historical development of the curriculum; types of curricula; relation of the curriculum and the extra-curriculum; preparation of units of instruction. Fee $.25. Not offered 1940-41. Mr. Lee.

*175. Foundations of Method. II; 3 cr. An advanced survey of principles and practices of teaching, discussing the planning, directing, and evaluating of learning experiences. Class discussion, field trips, and observation. Prerequisites: Graduate standing or teaching experience. Mr. Barr.

193. Introduction to Educational Supervision. I; 3 cr. An introductory survey of principles and practices in the field of educational supervision. Class discussion; field trips and observation. Prerequisite: Graduate standing or teaching experience. Mr. Barr.

235. Seminary, Development and Improvement of Teaching Methods. Yr; 2 cr. First semester: library research, criticism and report upon current methods of teaching. Second semester: experimental study of teaching methods under classroom conditions. Prerequisite: Graduate standing. Mr. Barr.

*243. Curriculum Construction. I; 2-3 cr. Immediate problems in the reorganization of the curriculum; possibilities for integration; units of work and learning activities; state and local programs of curriculum construction. Fee $.25. Mr. Lee.

244. Seminary, Curriculum Construction. II; 2 cr. Opportunity to develop curriculum materials or work on individual problems in curriculum. Prerequisite: Consent of instructor. Mr. Lee, Mr. Willing.

245. Seminary, the Pre-Service and In-Service Education of Teachers. Yr; 2 cr. Studies in the objectives, content, and administration of the teacher-education program and the supervision of instruction. Mr. Anderson, Mr. Barr, Mr. Mackenzie.

248. Seminary, Recent Developments in Higher Education. Yr; 2 cr. Consideration of modern higher education with particular emphasis upon (a) curriculum and objectives; (b) methods of teaching and evaluation; (c) selection of students; (d) administrative organization. Designed particularly for graduate students working for the Ph.D. degree who plan to teach in institutions of collegiate grade. Not offered 1940-41.

290. Field Practice in Supervision, Curriculum, and Method. I, II; 2-3 cr. Designed to supply first-hand experience in supervision, curriculum making, and teach-

ing through directed field practice. Students assigned to cooperating schools and activities according to needs. Mr. Barr, Mr. Lee, and Mr. Mackenzie.

See also advanced courses offered by the Department of Educational Methods.

VIII. ADULT, VOCATIONAL AND INDUSTRIAL ARTS EDUCATION

*155. Principles of Adult Education. II; 2 or 3 cr. Philosophy and practice of adult education as evidenced in programs offered by private and public agencies through forums, discussion groups, institutes, extension and correspondence courses, citizenship induction programs. Mr. Sheats.

*157. Part-Time Education. II; 2-3 cr. History, purpose, organization, curriculum, and administration of part-time education in Wisconsin and elsewhere. The Wisconsin Board of Vocational and Adult Education requires this course for the certification of teachers in vocational schools and centers in Wisconsin. Fee $.50. Mr. Edgerton.

253. Educational Leadership in Community Planning. II; 2 or 3 cr. Problems of community organization and leadership. Techniques of community analysis, elements of democratic leadership, successful patterns for coordinating and improving programs for community betterment. Students electing this course should have taken Education 74 or an introductory course in sociology. Not offered 1940-41. Mr. Sheats.

254. Seminary, Vocational and Adult Education. Yr; 2 cr. Critical examination of existing practices in determining objectives, content, and methods of organized vocational and adult instruction in large and small communities. Individual research. Mr. Sheats.

A number of courses are offered in *Summer Sessions* which are not listed in this announcement; for descriptions of these courses, see bulletins of the *Summer Session.*

EDUCATIONAL METHODS

Professors E. B. Gordon, Kivlin, Roeseler, Walton, Zuill; Associate Professors Borchers, Cronin, Davis, Easum, Evans, Mackenzie, *Chairman,* Nohr, Phillips, Pooley; Assistant Professors Guyles, Henderson, Hensey, L. Johnson, Low, Milligan, Sur, Trump, Weber; Lecturer Zawacki; Instructors Clark, Freitag, Morrissey, Powers, Smith; Acting Instructor Budewig.

Courses numbered under 100 and course 198 are the first courses taken by students in the undergraduate teacher-education program which deal with the teaching in the various subject areas. Each gives attention to objectives, methods, instructional materials and problems of curriculum organization in the field indicated by the title.

Courses in this department are open to and *may be credited only by students who are registered in the School of Education* with a major or minor in the department concerned. *Education 75 and senior standing are prerequisites for these courses.* These regulations do not apply to Courses 184 and 199.

2. The Teaching of Vocal Music in the Schools. Yr; 3 cr., I; 2 cr., II. Mr. Gordon.

3. The Teaching of Instrumental Music. Yr; 3 cr., I; 2 cr., II. Mr. Sur.

26. Methods in Rehabilitation of Speech. II; 3 cr. Prerequisites: Speech 24 or 25 and 185. Open only to majors in speech correction. Miss Powers.

27. Methods in Speech Reading for Children. I; 3 cr. Prerequisite: Speech 185. Open only to majors in speech correction. Miss Powers.

49. The Teaching of Polish. I; 2 or 5 cr. Practice teaching in Polish is not offered in the Wisconsin High School; however, those who elect this course are required to do participation-teaching in another subject. Mr. Zawacki.

50. THE TEACHING OF AGRICULTURE. I, II; 1-5 cr. Mr. Kivlin, Mr. Morrissey, Mr. Freitag.

52. THE TEACHING OF HOME ECONOMICS. I, II; 3 or 5 cr. Miss Budewig.

62. THE TEACHING OF ART. I, II; 5 cr. Miss Clark.

69. THE TEACHING OF PHYSICAL EDUCATION. Yr. 6 cr.; 4 cr. educational practice, 2 cr. theory. Prerequisites: Physical Education 20, 31, 32, 33, 42, 43, and 60. Miss Cronin and others.

70. THE TEACHING OF PHYSICAL EDUCATION. II; 2 or 5 cr. Mr. Nohr.

71. THE TEACHING OF BIOLOGY. II; 2 or 5 cr. Miss Weber.

72. THE TEACHING OF CHEMISTRY. II; 2 or 5 cr. Prerequisites: Chemistry 1; first semester of Chemistry 120, or credit or enrollment for five credits in Chemistry 11. Mr. Walton.

75. THE TEACHING OF BOOKKEEPING. II; 2 or 5 cr. Prerequisite: Commerce 9. Miss Hensey.

76. THE TEACHING OF ENGLISH. I, II; 2 or 5 cr. Prerequisites: English 123 or 124, and senior standing. Mr. Pooley.

81. THE TEACHING OF FRENCH, ITALIAN, AND SPANISH. I, II; 2 or 5 cr. Miss Johnson.

83. THE TEACHING OF GERMAN. I; 2 or 5 cr. For seniors and graduates. Graduate credit on special recommendation of the instructor. Mr. Roeseler.

84. THE TEACHING OF HISTORY AND SOCIAL STUDIES. I, II; 2 or 5 cr. Mr. Phillips.

90. THE TEACHING OF LATIN. II; 2 or 5 cr. Miss Guyles.

93. THE TEACHING OF MATHEMATICS. II; 2 or 5 cr. Open to mathematics majors or minors in the School of Education who have had Education 1 and 2 or Education 75. Not open to those who have had Education 3. Mr. Trump.

97. THE TEACHING OF SCIENCE. I, II; 2-5 cr. Mr. Davis.

134. INVESTIGATIONS IN THE TEACHING OF SCIENCE. II; 2 cr. Mr. Davis.

150. LIBRARY SERVICE. Yr; 2 cr. (See Library Science 150, page 294.)

156. THE TEACHING OF HOME ECONOMICS IN THE PART-TIME SCHOOL AND RURAL VOCATIONAL CENTERS. Yr; 2 cr. lect. (I); 2 cr. off-campus teaching (II). Prerequisites: Senior standing and Education 75. Miss Budewig.

184. PRACTICE TEACHING ON THE COLLEGE LEVEL. Yr; 2 cr. Prerequisite: Graduate assistantship in the department of the major. Mr. Easum, Mr. Evans, Mr. Milligan.

188. SEMINAR IN HOME ECONOMICS EDUCATION. I; 2 cr. Recent trends, studies and research in home economics education and allied fields. The changing philosophy in home economics; curriculum planning; evaluation of programs. Intensive study of individual problems. Miss Zuill.

198. THE TEACHING OF SPEECH IN HIGH SCHOOL. I; 2 or 5 cr. Miss Borchers.

199. THE TEACHING OF SPEECH IN COLLEGE. II; 2 cr. Prerequisite: Graduate standing in speech. Miss Borchers.

A number of courses are offered in *Summer Sessions* which are not listed in this announcement; for descriptions of these courses, see bulletins of the *Summer Session.*

PHYSICAL EDUCATION—MEN

PROFESSORS JONES, LOWMAN, *Chairman*; ASSOCIATE PROFESSORS MANSFIELD, MASLEY, NOHR; ASSISTANT PROFESSORS FRANCIS, NICKERSON, RIPPE, THOMSEN; INSTRUCTORS KNAPP, MALOOF.

Courses 59, 159, and 164 may be elected for credit by students in the School of Education.

6. THEORY AND PRACTICE. I; 2 cr. History and principles of physical education and practical physical education fundamentals. Lab. fee $2.00. Staff.

7. THEORY AND PRACTICE. II; 2 cr. Tactics, calisthenics, and elementary apparatus; class instruction in minor sports and swimming. Lab. fee $2.00. Staff.

8. THEORY AND PRACTICE. I; 2-4 cr. Graded games, calisthenics, and nomenclature; football practice; basketball practice; minor sports. Lab. fee $2.00. Staff.

9. THEORY AND PRACTICE. II; 2-4 cr. Basketball theory; football theory; calisthenics; apparatus, with methods of progression; track and field theory and practice; baseball practice. Lab. fee $2.00. Staff.

10. THEORY AND PRACTICE. I; 2-4 cr. Critical discussions; physical education for elementary and secondary schools; football practice; basketball practice; games of higher organization. Lab. fee $2.00. Staff.

11. THEORY AND PRACTICE. II; 2-4 cr. Physical education programs; baseball theory and practice; track and field practice; minor sports. Lab. fee $2.00. Staff.

12. THEORY AND PRACTICE. I; 2-4 cr. Athletic conditioning and training; advanced basketball and football theory; practice teaching; testing programs; improvement of personal proficiency in all phases of material. Lab. fee $2.00. Staff.

13. THEORY AND PRACTICE. II; 2-4 cr. Advanced programs; gymnastic dancing; rhythmics; exhibitions; demonstrations; natural gymnastics, stunts, tumbling; tests; advanced track theory; baseball theory; life-saving and advanced swimming; practice teaching. Lab. fee $2.00. Staff.

NOTE: In exceptonal cases, Physical Education 8 to 13, inclusive, may be offered for 2 to 4 credits, not to exceed a total of 21 credits for the theory and practice courses.

2. PHYSIOLOGY (Physical Education—Men). II; 4 cr. Prerequisite: Sophomore standing. Lab. fee $2.00. Dr. Maloof.

16. FIRST AID AND SAFETY EDUCATION. II; 2 cr. The American Red Cross Certificate will be issued to all who complete the course satisfactorily. Mr. Masley.

17. ATHLETIC CONDITIONING AND TRAINING. I; 2 cr. Open only to physical education minors. Mr. Bakke.

39. HUMAN ANATOMY (Physical Education—Men). I; 4 cr. Prerequisite: Sophomore standing. Lab. fee $3.00. Dr. Maloof.

58. HUMAN MECHANICS. I; 2 cr. Prerequisite: Human anatomy. Mr. Nohr.

59. NATURE, FUNCTION, AND ORGANIZATION OF PLAY. I; 3 cr. Prerequisite: Psychology 1 or 3 credits in sociology. Mr. Lowman.

71. CAMP ADMINISTRATION AND SCOUTING. II; 3 cr. Prerequisite: Junior standing. Mr. Masley, Mr. Thomsen.

80. COMMUNITY RECREATION. II; 2 cr. Prerequisite: Physical Education 59, or three credits in education or sociology. Mr. Lowman, Mr. Masley.

107. EFFECTS OF PHYSICAL ACTIVITIES ON THE BODY (Physiology of exercise). I; 2 cr. Prerequisites: Physical Education 58, Physiology 2. Mr. Nohr.

119a. PHYSICAL EXAMINATIONS AND THERAPEUTICS. I; 3 cr. Prerequisites: Anatomy 39, Physiology 2. Mr. Francis.

119b. PHYSICAL EXAMINATIONS AND THERAPEUTICS. II; 3 cr. Prerequisite: Physical Education 119a. Mr. Francis.

130. TESTS AND MEASUREMENTS IN PHYSICAL EDUCATION. I; 2 cr. Prerequisite: Consent of instructor. Miss Glassow. Mr. Nohr.

159. PLAY, RECREATION, AND LEISURE TIME PROBLEMS. I; 2 cr. Prerequisite: Physical Education 59 or consent of instructor. Mr. Lowman.

164. SCHOOL HEALTH AND HYGIENE. I; 4 cr. Prerequisites: Anatomy 39, Physiology 2. Mr. Francis.

168. Organization and Administration of Physical Education. II; 2 cr. Prerequisites: Physical Education 12 and 59. Mr. Lowman, Mr. Knapp.

178. Physical Education for Elementary and Secondary Schools. II; 2 cr. Mr. Nohr.

263. Advanced Therapeutic Gymnastics. II; 2 cr. Especially qualified students may arrange for research in corrective gymnastics and physical therapy. Prerequisite: Physical Education 119b, or consent of instructor. Mr. Francis.

291. Problems in Organization, Teaching, and Adaptation. II; 2 cr. Prerequisite: Physical Education 168 or Educational Methods 70. Mr. Lowman.

293. Seminary on Research Studies in Physical Education. Yr; 2-4 cr. Mr. Lowman, Mr. Francis.

TEACHERS' COURSE

Educational Methods 70. The Teaching of Physical Education. II; 5 cr. Conducting the instructional period; selecting, organizing, and adapting activities for the various levels; analysis of teaching procedures; testing and grading; preparing unit assignments and lesson plans; practice teaching. Mr. Nohr.

PHYSICAL EDUCATION—WOMEN

Professor Trilling, *Chairman*; Associate Professors Bassett, H'Doubler-Claxton, Cronin, Denniston, Glassow; Instructors Dodge, Hellebrandt, Horne, Lindegren, Meyer, Russell, Schwarz.

Starred (★) courses are open only to students majoring in physical education. Other courses are open to students in the School of Education (up to four credits) by consent of instructor.

★20. Practice in Dancing, Gymnastics, and Sports. Yr; 0-2 cr. per term. Main stress is on developing students' motor skills.

31. Sport Techniques. II; 1-2 cr. Softball, archery, tennis. Analysis of rules and techniques; positions and team play; care of equipment. Practice in coaching and officiating. Staff.

32. Sport Techniques. I; 1-2 cr. Field hockey, basketball. Analysis of rules and techiques; positions and team play; care of equipment. Practice in coaching and officiating. Staff.

33. Sport Techniques. II; 1-2 cr. *Swimming*—teaching methods, equipment, recreational swimming, administration of program, classification and testing methods, diving, competitive swimming. *Individual athletic activities*—Activities suitable for elementary grades, high school and college; organization and administration in practice and meets. Development of personal skill and in officiating. Miss Bassett, Miss Horne.

42. Theory and Practice of Play. I; 2 cr. Practice in game types, analysis of games in terms of motor and social values. Philosophy of play, recreation programs, leisure time problems. Miss Cronin.

43. Rhythm and Elementary Dance Forms. A. II; 1-2 cr. Singing games and folk dances for grades and junior high school. Special project, study of background of folk dancing in one country including a folk festival. Miss Bassett, Miss Dodge.

49. Rhythmic Analysis of Tap and Folk Dances. B. II; 1 cr. Form and rhythmic structure of European and American folk dances. Rhythmic analysis of tap dance leading to original composition. Prerequisite: Consent of instructor. Miss Dodge.

56. Kinesiology. I; 3 cr. Principles of body mechanics; principles underlying techniques in sport skills and common activities; classification of musculature involved in these sport skills and activities. Prerequiste: Anatomy 36 or 120. Miss Glassow.

60. Rhythmic Form and Analysis. I; 1-2 cr. The analysis of rhythmical elements in movement and their application to dance. A basic course for teachers of all ages and all levels of ability. Prerequisite: Major in Physical Education, or consent of instructor. Miss H'Doubler.

*69. The Teaching of Physical Education (Educational Methods 69). Yr; 6 cr. Practice teaching in two age levels. Prerequisites: P.E. 20, 31, 32, 33, 42, 43, 60. Miss Cronin and others.

81. Camp Leadership. II; 2 cr. A consideration of the educational philosophy of camping. Laboratory work includes at least one week-end trip. Special lectures are given on stars, music, nature work, etc. Prerequisites: Sophomore standing and consent of instructor. Fee $2.00. Miss Meyer.

130. Tests and Measurements. I; 2 cr. Standards for evaluating tests; statistics. Tests for elementary and secondary schools, and for college men and women, in specific activities. Tests for general motor ability. Miss Glassow.

133. Accompaniment for Contemporary Dance. I; 2-3 cr. An analysis of the structural relationship between music and dance. Improvisation on primitive percussion instruments. A study of music suitable for dance. Prerequisites: P.E. 160, Music 1. Miss Hellebrandt.

134. Accompaniment for Contemporary Dance. II; 2-3 cr. Continuation of the content of P.E. 133 stressing recent developments in the dance. Experimental composition on primitive percussion instruments to movement patterns and dance compositions. Prerequisite: P.E. 133. Miss Hellebrandt.

146. Theory and Philosophy of Dance. II; 2-3 cr. A clarification of the true meaning of dance, its justification as an educational and creative art medium, its place in the curriculum, a theory of art technique. Prerequisite: Dance major or consent of instructor. Miss H'Doubler.

160. Advanced Rhythmic Form and Analysis. II; 2-3 cr. Continuation of the content of P.E. 60 into elementary dance composition. A study of the rhythmic, dynamic, and spatial factors of dance movement. Prerequisite: P.E. 60. Miss Hellebrandt.

165. Dance Composition. II; 2-3 cr. Theory and practice. Basic principles of form, content, and style. Creative experience in ritual and pre-classic dance forms and original composition. Prerequisites: Dance major or consent of instructor. Miss Hellebrandt.

*168. Organization and Administration of Physical Education. 1; 2 cr. Problems of the administrator and supervisor; administrative policies and activities of physical education departments in schools and colleges. Local, sectional, and national organizations. Prerequisite: Senior standing in physical education course or consent of instructor. Miss Trilling.

174. Supervision in Physical Education. II; 2 cr. Duties of the supervisor, planning and evaluating the supervisory program. Practice in observing and evaluating teaching and in devising observation techniques. Prerequisite: Consent of instructor. Miss Cronin.

175. Therapeutic Gymnastics. I; 2 cr. Theory and practice of massage and passive exercises, of the use of gymnastics as a means of therapeutic treatment; first aid in physical activity emergencies. Prerequisite: Anatomy 36 or 120. Mrs. Denniston.

176. Therapeutic Gymnastics. II; 2 cr. Posture tests, records, and correction through exercise. Prerequisites: P.E. 56, 36, or 120, and 175. Mrs. Denniston.

*180. Topical Work. Yr; **cr. Analysis of thesis writing. Study of problems involved in evaluating papers and problems. Assigned topics for reading, conference, and report. Staff.

*181. THESIS COURSE IN THE DANCE. Yr; **cr. Historical survey of the cultural background of dance in various civilizations with special emphasis on the relation of social structure to the existing dance forms. Prerequisite: Dance major or consent of instructor. Miss H'Doubler.

198. HEALTH EDUCATION IN THE SCHOOLS. II; 2 cr. The teacher's background of sanitary science; health education programs, examinations, material, methods, and knowledge, attitudes and habits of children at various ages. Mrs. Denniston.

262. RESEARCH IN TESTS AND MEASUREMENTS. Yr; cr. to be arranged. Course is arranged to permit individual and group studies adapted to the interests of those enrolled. Prerequisite: P.E. 130. Miss Glassow.

265. SEMINARY IN DANCE PRODUCTION. II; 2 cr. Program building and production. Experience given in composing, casting, directing, and costuming; problems of publicity and expenses attendant upon production. Prerequisite: P.E. 165. Miss H'Doubler.

*292. SEMINARY IN ADMINISTRATION. Yr; cr. to be arranged. Scope and problems of administration of a modern plant. Each student traces one phase of administration. Review of current literature. Prerequisites: P.E. 168, Educational Methods 69 and consent of instructor. Miss Trilling.

TEACHERS' COURSE

THE TEACHING OF PHYSICAL EDUCATION. See Educational Methods 69, page 317.

Other courses in physical education open to women are listed under *Physical Education for Men;* they include 16, 59, 159, 164, and 293.

For courses in motor learning, physical development, child psychology, and supervision see the Department of Education, pages 311-316.

See also bulletins of the School of Music and of the Medical School for subjects required of physical education students.

Additional elective couses are offered in the *Summer Sessions,* descriptions of which may be found in the bulletins of the *Summer Session.*

COLLEGE OF ENGINEERING

F. Ellis Johnson, Dean

FACULTY

Altpeter, Roger James, *Ph.D.*, Assistant Professor of Chemical Engineering
Ayres, Edmund Dale, *M.S.*, Associate Professor of Electrical Engineering
Barker, George John, *B.S., E.M.*, Assistant Professor of Mining and Metallurgy
Benedict, Reginald Ralph, *M.S.*, Assistant Professor of Electrical Engineering
Bennett, Edward, *E.E.*, Professor of Electrical Engineering
Bridge, Bert Bernard, Instructor in Mechanical Engineering
Buroker, Donald Jasper, *B.S.*, Instructor in Machine Design
Cadwell, James Jay, *B.S.*, Instructor in Mechanics
Colbert, Thomas Peter, *B.S.*, Instructor in Machine Design
Cottingham, Willard Sherwin, *M.S.*, Assistant Professor of Structural Engineering
Cromer, Orville Charles, *M.S., C.E.*, Insttructor in Mechanical Engineering
Dodge, Eldon Raymond, *M.S.*, Instructor in Hydraulic and Sanitary Engineering
Doke, Howard Bailey, Assistant Professor of Drawing and Descriptive Geometry
Dorrans, James Morgan, Associate Professor of Mechanical Engineering; Superintendent, Engineering Shop Laboratories
Elliott, Benjamin George, *M.S., M.E.*, Professor of Mechanical Engineering, College of Engineering and Extension Division
Gordon, Donald Harvey, *M.S.*, Instructor in Chemical Engineering
Griffith, Fuller Orville, Jr., *B.S.*, Instructor in Drawing and Descriptive Geometry
Haddox, Louis Corydon, *M.S.*, Instructor in Mechanics
Hansen, Einar Theodore, *M.S., M.E.*, Instructor in Mechanical Engineering
Harker, Ralph Jackson, *B.S.*, Instructor in Machine Design
Hartenberg, Richard Scheunemann, *M.S.*, Instructor in Mechanics
Hoerig, Herman Frederick, *M.S.*, Instructor in Chemical Engineering
Hougen, Olaf Andreas, *Ph.D., Ch.E.*, Professor of Chemical Engineering
Hyland, Patrick Henry, *B.S., M.E.*, Professor of Machine Design
Jansky, Cyril Methodius, *B.S., B.A.*, Emeritus Professor of Electrical Engineering, College of Engineering and Extension Division
Johnson, F. Ellis, *B.A., E.E.*, Dean of the College of Engineering
Johnson, Royce Everett, *B.S., E.E.*, Assistant Professor of Electrical Engineering
Kelso, Leslie Erskine Allan, *B.S.*, Assistant Professor of Electrical Engineering
Kessler, Lewis Hanford, *M.S., C.E.*, Associate Professor of Hydraulic Engineering
Kinne, William Spaulding, *B.S.*, Professor of Structural Engineering; Consulting Engineer, Physical Plant
Koehler, Glenn, *M.S.*, Assistant Professor of Electrical Engineering
Kommers, Jesse Benjamin, *B.S., M.E.*, Professor of Mechanics
Kowalke, Otto Louis, *B.S., Ch.E.*, Professor of Chemical Engineering
Krombholz, A(lois) John, *Ph.D.*, Assistant Professor of Chemical Engineering
Kubiak, Henry Joseph, *B.S.*, Instructor in Electrical Engineering
Larson, Gustus Ludwig, *B.S., M.E.*, Professor of Mechanical Engineering; Consulting Engineer, Heating Station
Larson, Ludvig Conrad, *B.S., E.E.*, Assistant Professor of Electrical Engineering
Lenz, Arno Thomas, *M.S., C.E., Ph.D.*, Assistant Professor of Hydraulic and Sanitary Engineering
Liska, Joseph Arthur, *M.S.*, Instructor in Mechanics

LIVERMORE, JOSEPH DOW, *B.S.*, Assistant Professor of Drawing and Descriptive Geometry
MCCAFFERY, RICHARD STANISLAUS, *E.M.*, Professor of Mining and Metallurgy
MCNAUL, JAMES WILBUR, *B.S.*, Assistant Professor of Machine Design
MAURER, EDWARD ROSE, *B.S.*, Emeritus Professor of Mechanics
MAXFIELD, FREDERICK AUSTIN, *Ph.D.*, Instructor in Electrical Engineering
MEAD, DANIEL WEBSTER, *C.E., B.S., LL.D.*, Emeritus Professor of Hydraulic and Sanitary Engineering
MILLAR, ADAM VAUSE, *M.S.*, Assistant Dean, College of Engineering; Professor of Drawing and Descriptive Geometry
NEILL, WAYNE KENNETH, *M.S.*, Instructor in Chemical Engineering
NELSON, DELMAR WOOD, *M.S., M.E.*, Associate Professor of Mechanical Engineering
NICHOLS, MERLE STARR, *Ph.D.*, Lecturer in Hydraulic and Sanitary Engineering; Professor of Sanitary Chemistry; Chemist, State Laboratory of Hygiene
OESTERLE, JOSEPH FRANCIS, *Ph.D.*, Associate Professor of Mining and Metallurgy
ORTH, HERBERT DENNY, *B.S.*, Professor of Drawing and Descriptive Geometry
OWEN, RAY SPRAGUE, *B.S., C.E.*, Associate Professor of Topographic Engineering
PEOT, JOSEPH JOHN, *B.S.*, Instructor in Mechanical Engineering
PETERS, CHARLES FREDERICK, Instructor in Mechanical Engineering
PRICE, JOHN REESE, *B.S.*, Professor of Electrical Engineering; Consulting Electrical Engineer, Electric Sub Station
PUDDESTER, THOMAS, Instructor in Mechanical Engineering
RADER, LLOYD FORREST, *Ph.D.*, Professor of Civil Engineering
RAGATZ, ROLAND ANDREW, *Ph.D.*, Associate Professor of Chemical Engineering
ROARK, RAYMOND JEFFERSON, *M.S.*, Professor of Mechanics
ROSE, REED ALDEN, *M.S., M.E.*, Assistant Professor of Mechanical Engineering
ROSENTHAL, PHILIP CASPER, *M.S.*, Instructor in Metallurgy
ROWE, CHARLES ARTHUR, *M.S.*, Instructor in Chemical Engineering
SCHNEIDER, LEONARD GUSTAV, *M.S.*, Instructor in Mechanical Engineering
SCHUMANN, ROBERT NICHOLAS, Instructor in Mechanical Engineering
SHIELS, KENNETH GRINNELL, *M.S.*, Assistant Professor of Drawing and Descriptive Geometry
SHOREY, EDWIN ROY, *B.S., E.M.*, Professor of Mining and Metallurgy
SMITH, LEONARD SEWELL, *C.E.*, Emeritus Professor of Engineering
STREWLER, GORDON JEROME, *B.S.*, Instructor in Drawing and Descriptive Geometry
TAUXE, GEORGE JOHN, JR., *M.S.*, Instructor in Mechanics
TRACY, GORDON FREDERICK, *M.S.*, Associate Professor of Electrical Engineering
TURNEAURE, FREDERICK EUGENE, *C.E., D.Engr.*, Emeritus Dean of the College of Engineering
VAN HAGAN, LESLIE FLANDERS, *B.S., C.E.*, Professor of Civil Engineering
VOELKER, RAYMOND FREDERICK, *B.S.*, Instructor in Civil Engineering
VOLK, FREDERICK EUGENE, *B.A., B.S.*, Librarian, College of Engineering
WAGNER, ELDON CHRISTIAN, *B.S.*, Instructor in Topographic Engineering
WALTON, GRAHAM, *M.S.*, Instructor in Hydraulic Engineering
WASHA, GEORGE WILLIAM, *Ph.D.*, Instructor in Mechanics
WATSON, JAMES WEBSTER, *B.S.*, Professor of Electrical Engineering
WATTS, OLIVER PATTERSON, *Ph.D., Sc.D.*, Emeritus Associate Professor of Chemical Engineering
WENDT, KURT FRANK, *B.S.*, Assistant Professor of Mechanics
WILSON, GROVER C., *M.E., M.S.*, Associate Professor of Mechanical Engineering
WILSON, LEROY ALONZO, *M.E., M.M.E.*, Professor of Mechanical Engineering
WITHEY, MORTON OWEN, *B.S., C.E.*, Professor of Mechanics
WOODBURN, JAMES GELSTON, *Ph.D.*, Professor of Hydraulic Engineering
WORSENCROFT, ROBERT ROCKWOOD, *B.S.*, Instructor in Drawing and Descriptive Geometry
ZAPATA, JOSÉ, Lecturer in Civil Engineering

COLLEGE OF ENGINEERING

F. Ellis Johnson, Dean

That a thorough training in fundamentals is essential preparation for a career in engineering is the conviction which underlies the general policies of the College of Engineering of the University of Wisconsin. After a solid foundation of fundamentals has been laid, it seems desirable to give the students a limited amount of specialized training in the main fields into which professional engineering has divided itself.

In line with this policy, the college offers the following four-year courses: Chemical Engineering; Civil Engineering; Electrical Engineering; Mechanical Engineering; Metallurgical Engineering; and Mining Engineering. (For aeronautical engineering see page 332).

These courses lead to the degree of Bachelor of Science. The degrees of Master of Science and Doctor of Philosophy can be earned by graduate work. The professional degrees—"Chemical Engineer," "Civil Engineer," etc.—are granted to graduates of the college who have had at least five years of successful professional practice and who comply with certain other requirements.

The various courses leading to a degree are administered with sufficient flexibility to permit a student to satisfy any reasonable desires in regard to the subjects to be studied. Those students who desire a greater amount of liberal education than is provided for in the four-year program are encouraged to arrange special five- or six-year programs.

A graduate from any of the engineering courses may earn a bachelor's degree in any other engineering course by one year of additional study, provided that the electives of the first course were taken with the additional degree in view.

The courses in engineering are designed to train the student thoroughly in mathematics, the physical sciences, and engineering principles and to teach the student to apply these fundamentals to the various types of problems that are encountered in engineering practice. In addition to these technical objectives, there is the further objective that the training shall equip the graduates of the college to rise to the highest positions of responsibility in business and public affairs.

Because the College of Engineering is an integral and intimate part of a great university, it offers its students many important advantages. They receive their training in mathematics and the fundamental sciences under the direction of specialists; they have the privilege of choosing their electives from a wide range of courses offered in other colleges on the same campus; they have the excellent laboratory and library facilities that only a large institution can offer; they gain a true perspective of their own profession through contacts with students who are specializing in other fields; and they find relaxation and an outlet for their various talents in a wide range of student activities.

GRADUATE WORK

The graduate work in the College of Engineering is a part of the Graduate School of the University, and is in charge of an administrative committee. Excellent opportunities are offered in the various departments for advanced theoretical work and for research. A special fund is available to be devoted exclusively to experimental work in the engineering laboratories.

For admission to the Graduate School an official transcript of the undergraduate record of the applicant should be forwarded to the Dean of the Graduate School, Bascom Hall, some weeks in advance of the opening of the session.

The degree of Master of Science (in civil engineering, mechanical engineering, etc.) is conferred upon graduates of approved institutions who have completed suitable undergraduate courses and who pursue advanced professional study at the University

for one year or more, present a satisfactory thesis, and pass an oral examination upon the field of their graduate work.

The degrees of Civil Engineer, Mechanical Engineer, Electrical Engineer, Chemical Engineer, Engineer of Mines, and Metallurgical Engineer are conferred upon graduates of the College of Engineering of the University of Wisconsin who have spent five years in professional work, at least one of which must have been in a position of responsibility, and who present a satisfactory thesis.

The degree of Doctor of Philosophy is conferred upon graduates of the engineering courses under the same requirements as apply to graduates of other divisions of the University.

For statements of these requirements, see the bulletin of the Graduate School.

ENGINEERING EXPERIMENT STATION

The Engineering Experiment Station of the College of Engineering was established by action of the Board of Regents, March 4, 1914. The members of the engineering faculty, together with fellows, scholars, and special assistants, devoting their time to research, constitute the members of the staff of the Experiment Station.

The purpose of this Experiment Station is the promotion of the engineering and industrial interests of the State by the scientific study of problems related thereto, although generally such problems prove of wider interest and importance. A wide range of facilities for experimental study is offered by the laboratories of the College of Engineering such as the Hydraulic and Sanitary Engineering Laboratories, the Testing Materials Laboratory, and all the various laboratories of the Departments of Mechanical, Electrical, Chemical, and Mining and Metallurgical Engineering. Besides these there is also the special Electrical Standards Laboratory, which is operated in connection with the work of the Wisconsin Public Service Commission and serves the State at large, as well as the industries of the State, for all manner of tests and the standardizing of electrical metering devices.

The results of the research done under the auspices of the Engineering Experiment Station have appeared in part in papers before the technical societies and in part in the Engineering Series of the University Bulletin. A list of the 85 reprints of technical papers and the 86 bulletins published to date may be secured upon application to the University Editor.

For further information regarding the Engineering Experiment Station address F. Ellis Johnson, Director.

BUILDINGS

The College of Engineering occupies completely four buildings and shares the occupancy of two others. Included are the Chemical Engineering Building, the Hydraulic and Sanitary Laboratories, the Mechanical Engineering Building, and the Mining and Metallurgical Building. The electrical laboratories share one building while the departments of drawing and mechanics and the surveying laboratory occupy a part of what was the old Main Engineering Building.

LIBRARY

The library of the College of Engineering, located in the Mechanical Engineering Building, contains a large collection of technical books and complete sets of all important magazines and the transactions of engineering societies. Students have available the current numbers of about 250 engineering periodicals. In addition, they have free access to the University Library, the Library of the State Historical Society, the Library of the Wisconsin Academy of Sciences, Arts, and Letters, and the Madison Free Library System.

LABORATORIES

CHEMICAL ENGINEERING

CHEMICAL MANUFACTURE LABORATORY—For experiments on a semi-factory scale.

ELECTROCHEMISTRY LABORATORY—For instruction in electroplating, electrolysis, and corrosion.

GAS AND FUEL LABORATORY—For testing heating values of coal and oil, for making gas analyses, and for testing petroleum products and water.

INSTRUMENTATION LABORATORY—For instruction in the calibration of instruments and in the measurement and control, under industrial conditions, of temperature, pressure, and fluid flow.

METALLOGRAPHY LABORATORY—Exceptionally well equipped for both instruction and research.

MICROSCOPY LABORATORY—For the study and identification of textiles, pulp and paper, and other materials.

CIVIL ENGINEERING

HIGHWAY LABORATORY—The materials laboratory of the Wisconsin Highway Commission is located on the campus, and its excellent facilities for instruction and research are available to students in the courses in highway engineering.

HYDRAULICS LABORATORY—Occupies a special building on the shore of Lake Mendota and is fully equipped for both instruction and research.

SANITARY LABORATORY—Equipped for both teaching and research. Sewage treatment plants in nearby towns are available for graduate research.

SURVEYING LABORATORY—Equipped to give each student individual practice in the use of surveying instruments.

ELECTRICAL ENGINEERING

COMMUNICATIONS LABORATORY—For the investigation of radio transmission and reception and for testing, design, and research in connection with the state-operated radio stations. Contains an artificial open-wire line equivalent to 200 miles and an artificial cable circuit with loading equivalent to 68 miles. Equipment for studying transient phenomena comprises oscillographs and synchronous switching devices which permit of seeing transient wave forms on the viewing screen of the oscillograph.

DYNAMO LABORATORY—Equipped with a wide variety of electrical apparatus for verifying electrical theory and for research.

ELECTRICAL STANDARDS LABORATORY—Provides facilities for investigative work in electrical work in electrical instruments and measurements. Does the official standardizing work for the Public Service Commission of Wisconsin and for the public utilities of the State. Maintains contact with national organizations concerned with standardization and with the National Bureau of Standards, many of whose facilities are available to the laboratory.

ELECTRODYNAMICS LABORATORY—For demonstrating the fundamentals of electrodynamics and of conduction through vacuo and through gases.

HIGH-VOLTAGE LABORATORY—For routine tests and research. Equipped to supply 300,000 volts.

PHOTOMETRIC LABORATORY—For the study and testing of light sources.

MECHANICAL ENGINEERING

AIR CONDITIONING LABORATORY—Equipped for research in refrigerating and in heating, ventilating, and air conditioning.

AUTOMOTIVE LABORATORY—Equipped to test internal-combustion engines up to speeds of 3,500 revolutions per minute.

BOILER LABORATORY—For demonstration and to prepare students for actual plant tests.

CALIBRATION LABORATORY—Equipped to test gages and indicators to pressures of 25,000 pounds per square inch.

ENGINE LABORATORY—Equipped for demonstration and research. Contains, among other equipment, a 25-kilowatt turbine, a complete 15-ton refrigeration plant, and a 50-hp. Diesel engine.

FOUNDRY—Contains, among other equipment, a 36-inch cupola, brass furnace, core oven, molding machines, and a two-ton electric crane.

MACHINE LABORATORY—For instruction in shop practice with emphasis on production methods.

MACHINE DESIGN LABORATORY—Equipped with a belt-testing machine, transmission dynamometers, and related apparatus.

OIL LABORATORY—Most of the state oil tests are performed in this complete and modern laboratory.

WELDING LABORATORY—Equipped for arc and acetylene welding and for testing welds.

MECHANICS

MATERIALS LABORATORIES—Equipped for usual standard tests on materials of construction. Include a cement laboratory, a concrete laboratory, a metals laboratory, a vibration laboratory, a soil mechanics laboratory, and a fatigue laboratory. Contain photo-elastic apparatus, refrigerator, and room with humidity and temperature control. The largest testing machine has a capacity of 600,000 lb.

MINING AND METALLURGY

CERAMICS LABORATORY—Equipped for the manufacture of clay products, including the making, burning, and testing of ware and the preparation and application of glazes.

CHEMICAL LABORATORY—For instruction in assaying and for control work in the metallurgical laboratory.

CRUSHING LABORATORY—Equipped with small-scale and large-scale crushing and grinding machinery and complete screen testing apparatus.

ELECTROLYTIC LABORATORY—Equipped for the production of electrolytic non-ferrous metals. Contains apparatus for roasting, leaching, purification, and electrolytic recovery of metals.

FOUNDRY LABORATORY—For testing and control of molding sands. Contains apparatus for melting and for metallographic control of the product.

METALLOGRAPHIC LABORATORY—Equipped with micrometallographs, microscopes, and photographic apparatus. Provides for mounting and polishing specimens.

METALLURGICAL FURNACE LABORATORY—Equipped with a tilting arc furnace, a blast furnace, acid and basic lined converters, and a variety of metallurgical and assay furnaces with necessary accessories.

MINERAL DRESSING SUITE—Includes a mineral dressing laboratory, a flotation testing laboratory, and a chemical laboratory for control assaying in mill tests. A complete, small-scale flotation mill permits the development of any desired flow sheet.

PHYSICAL METALLURGY LABORATORY—Well equipped with furnaces of various types and temperature-control apparatus.

PYROMETRIC STANDARDS LABORATORY—Equipped for calibration of pyrometers by comparison with standards calibrated by the United States Bureau of Standards.

X-RAY LABORATORY—For the measurement of lattice parameters of metals and alloys. Patterns are obtained by the use of a back-deflection camera.

ADMISSION

The general method of admission to the College of Engineering is by presenting a certificate of graduation from an accredited high school with the recommendation of the principal. Sixteen units are the fundamental requirement. Among these, students are advised to present the following: 1½ or 2 units of algebra, 1 unit of plane geometry, ½ unit of solid geometry, 3 units of English, 2 units each of science and history, and 2-4 units of foreign language.

Other methods of entrance are by passing entrance examinations or by qualifying as an "Adult Special" student. A fourth method is by submitting evidence of study successfully pursued in another institution of higher learning. Students seeking to transfer from another institution should write directly to the Dean of the College of Engineering.

For more detailed and explicit information concerning entrance, see pages 21-28 of the General Information Bulletin of the University.

SPECIAL NOTICE REGARDING ALGEBRA

One and one-half units of algebra are required as preparation for the first semester of mathematics regularly scheduled for freshman engineers. Students will be admitted to the College of Engineering with one unit of algebra but these students must normally take one semester of algebra in the University without credit. Students who are deficient in algebra usually complete their freshman mathematics by taking the second semester of the course in the summer school following the freshman year.

The first unit of algebra should include the following subjects: addition, subtraction, multiplication, division of polynomials, equations of the first degree with one unknown number, simultaneous equations of the first degree, including the graphical solution of a pair of linear equations with two unknowns; factoring; fractions; the solution of quadratic equations.

The additional one-half unit should cover the following subjects: ratio, proportion, and variation; elementary theory of exponents and radicals; the theory of quadratic equations; graphical representation of simple relations between two variables.

All students entering the College of Engineering will be tested in algebra by class work and by an examination given shortly after the beginning of the first semester. Usually students having but one year of high-school algebra are unable to pass this examination. It is essential that students in the engineering courses shall possess a good working knowledge of algebra at the time when they begin their course, and it is the purpose of the examination to secure this by requiring a review of the subject shortly before entering the University. Students failing in the test are not permitted to continue with regular freshman mathematics, but are required to take a review of algebra during the first semester. A special non-credit course is provided for this purpose.

STUDENT EXPENSE

For information regarding living costs, fees and tuition, housing, student employment, and loans and scholarships consult the General Information Bulletin.

ADVISERS

Each undergraduate student in engineering is assigned to a member of the faculty who assists in arranging his program of study, watches over the student's progress, and is available for consultation and advice whenever needed. Normally, the student will have a different adviser each year.

GRADE-POINT SYSTEM

Under the grade-point system, points are awarded as follows: For Grade A (*excellent*), three points for each credit; for grade B (*good*), two points; for grade C (*fair*), one point; for grade D (*poor*), no points. In the College of Engineering at least 146 grade-points and 146 credits, exclusive of freshman lecture, freshman band, and physical education, are required for graduation from any one of the four-year courses. Exceptions are made in the Engineering-Law course (see page 332). No student will be recommended for the degree of Bachelor of Science who does not earn at least one grade-point per credit during the last two semesters of his attendance at the University.

HONORS

Honors and high honors are awarded at the end of the sophomore year, and at graduation, to students who have spent not less than two full years in residence in the University. The studies, however, may be taken in residence at Madison or Milwaukee, or partly by correspondence. In computing credits and points for honors or high honors, the following subjects are not included: sub-freshman subjects, physical education, freshman band, and freshman lectures; credits obtained by special examinations, and credits earned at other institutions.

Sophomore Honors and Sophomore High Honors are awarded on the basis of a minimum of two years' work (not less than 60 credits, exclusive of physical education, freshman band, and freshman lectures) completed in the University. A student earning during these two years 135 grade-points, plus 1.5 grade-points for each credit above 60 will be awarded *sophomore honors;* a student earning during these two years 165 grade-points plus 2 grade-points for each credit above 60, will be awarded *sophomore high honors.*

Honors and High Honors at Graduation. Students having an average of 2.25 or more and less than 2.75 points per credit at graduation, will be awarded *honors.* Students having an average of 2.75 or more points per credit will be awarded *high honors.*

PHYSICAL ACTIVITY REQUIREMENT

All male freshmen are reuqired to take Military Science, Physical Education, or Band. Those electing Military Science must take it for at least two years. Students completing the basic course in Military Science (four semesters) are granted four elective credits toward graduation. Students completing the advanced course in Military Science (four semesters) are granted eight additional credits toward graduation. Those who continue with Band will receive one credit per semester beginning with the sophomore year.

FRESHMAN ENGLISH

Students who receive a grade of "A" in English 1a *may* substitute a free elective for English 1b.

FRESHMAN LECTURES

Freshman engineers are required to attend a course of lectures given once a week throughout the year. The list of speakers includes faculty men from various departments of the University who are outstanding in their fields. The purpose of the course is to give the student an adequate conception of the work of the engineer and of the preparation which is necessary for the successful practice of the profession and to broaden his horizon by acquainting him with activities in other fields.

SENIOR CONFERENCE

Senior engineers are required to attend a weekly conference with the Dean throughout the year. At these conferences prominent engineers and men from industry and business will be invited to speak. The purpose is to present and discuss matters of importance to the young engineering graduate.

INSPECTION TRIPS

Inspection trips to various industrial plants and large construction projects are arranged and conducted by members of the faculty for the junior and senior engineering students. The opportunities enjoyed by the groups of students on these trips are unusual and are not readily obtained by individuals. The inspections offered by the various courses differ and are indicated under the course requirements.

THESES

In all courses, candidates for a second or a professional degree in engineering shall submit a thesis. The thesis requirements for the B.S. degree in the different courses in the College of Engineering are as follows:

In the civil engineering course a thesis is required. In the electrical, mechanical, and mining and metallurgical engineering courses a thesis is optional. In chemical engineering a course in special problems replaces the thesis requirement.

If a thesis is elected, the subject of the thesis shall be selected by the student after consultation between the student, his adviser, and the instructor who is to direct the work, and it shall be submitted to the Course Committee for approval. The total number of credit hours granted for this work shall be not less than three nor more than five, except by special action. The thesis is to be typewritten according to specifications furnished by the librarian of the University, and before it is accepted it must be approved by the instructor under whom the work has been done. It shall be deposited in the University Library by the second Friday before Commencement.

ADVANCED INDEPENDENT STUDY

Graduate students and "upper-group" juniors and seniors in engineering may satisfy some elective credits in their various courses by advanced independent study of subjects or problems suitable for analytical investigative work. To validate such an election, the student's application and proposed project must be approved by his adviser and by the course committee of the department in which the student is enrolled. Such elections shall be placed on the student's semester study list under the course numbers 180 for undergraduate students and 280 for graduate students, and the approval of the course committee shall be recorded by the adviser on the class cards. The course

committee will specify the number of credits for which the proposed independent study is approved. Studies involving laboratory work are subject to a fee of $3.00 per laboratory credit.

The proposed study may be of an economic, historical, statistical, theoretical, or experimental type. The object of the study will be to carry forward the investigative work of the departments, and to develop the initiative and investigative ability of the student. The student must submit a tyewritten report of his study to be kept for reference in the records of the department. Studies of unusual merit will be accepted as theses and filed in the University Library.

SIX-YEAR COURSES IN ENGINEERING AND LAW

Students who desire to obtain a training in the fundamental principles both of engineering and of law may, by pursuing the Engineering-Law Courses, qualify for the degree Bachelor of Science in Engineering at the end of four years, and for the degree Bachelor of Laws at the end of six years, including attendance at one ten-week summer session of the Law School.

To accomplish this:

1. The student will enroll in any one of the five engineering courses and will pursue the studies in this course for three years, electing during this three-year period at least six credits from the field of the social sciences. These credits should be elected from studies such as, Economics 1; History 4, 5, 117, 141; Philosophy 11; Political Science 101; Sociology 46, 139.

2. At the end of three years, the student will be admitted to the Law School, but to qualify for the degree Bachelor of Science in the appropriate engineering course at the end of his fourth year, he will devote approximately one-half of his time during the year to engineering subjects and the other half to studies in the Law School. Thirteen credits in the Law School shall be taken as equivalent to nineteen credits in the College of Engineering in meeting the requirements of one hundred forty-six credits for graduation.

3. Enrollment in the Law School for two additional years and one summer session will meet all the time requirements for the degree Bachelor of Laws, with the exception of the six months' apprenticeship in a law office, or its equivalent. For a description of the courses in law, the credit requirements of which are not altered by this arrangement, the Bulletin of the Law School should be consulted.

AERONAUTICAL ENGINEERING

The College of Engineering offers no separate curriculum and degree in aeronautical engineering. However, students from any branch of engineering who are interested in aeronautics are encouraged to elect from among such courses as the following those that will prepare them for service in some phase of aeronautics. Any of the following courses are available when registration is sufficient:

First Semester		Second Semester	
Mech. 111—Aerodynamics	3 cr.	Mech. 112—Airplane stress analysis	3 cr.
Mech. 113—Design of airplane parts	2 cr.	Mech. 114—Propeller theory	2 cr.
M.E. 38—Aircraft welding	2 cr.	Meteor. 110—Aeronautical meteorology	1 cr.
M.E. 119—Airplane engines	2 cr.	M.E. 130—Airplane engine testing	2 cr.

FOREST PRODUCTS LABORATORY

The United States Forest Products Laboratory, located in Madison, offers a number of undergraduate courses which are given by members of its staff, and, in addition,

offers an opportunity for graduate research in forest products. A description of the courses which are listed herewith will be found in the general catalogue.

First Semester	Second Semester
For. Prod. 1—General forestry—2 cr.	For. Prod. 102—Wood technology—2 cr.
For. Prod. 101—Properties of wood—2 cr.	

ENGINEERING CURRICULA

CHEMICAL ENGINEERING CURRICULUM

LEADING TO THE DEGREE OF BACHELOR OF SCIENCE (CHEMICAL ENGINEERING)

FRESHMAN YEAR

First Semester	Credits	Second Semester	Credits
Math. 51—Elementary analysis	5	Math. 52—Elementary analysis	5
Drawing 1—Elements of drawing	3	Drawing 2—Elements of drawing	3
Chem. 1a—General chemistry	5	Chem. 1b—General chemistry	5
Engl. 1a—Freshman composition	3	Engl. 1b—Freshman composition	3
Speech 8a—Extempore speaking or Free elective	2	Speech 8a—Extempore speaking or Free elective	2
Freshman lectures	0	Freshman lectures	0
Physical activity requirement		Physical activity requirement	
	18		18

SOPHOMORE YEAR

Math. 102a—Calculus	4	Math. 102b—Calculus	4
Physics 51—General physics	5	Physics 52—General physics	5
Chem. 120—Organic theory	2	Chem. 120—Organic theory	2
Chem. 121—Organic laboratory	2	Chem. 121—Organic laboratory	1
Ch.E. 20—Industrial chemistry	3	Chem. 14—Quant. analysis	5
Free electives	2	Ch.E. 18—Fundamentals	2
	18		19

JUNIOR YEAR

M.E. 65—Thermodynamics	3	M.E. 66—Heat power engineering	2
Mech. 4—Statics, dynamics	4	M.E. 77—Heat engine testing	2
Chem. 130—Physical chemistry	2	Mech. 5—Strength of materials	3
Chem. 131—Physical chem. lab.	1	Mech. 54—Testing laboratory	2
Ch.E. 12—Technical analysis	2	Chem. 130—Physical chemistry	2
Ch.E. 111—Manufacturing operations	3	Chem. 131—Physical chem. lab.	1
Ch.E. 117—Measurements	3	Ch.E. 111—Manufacturing operations	3
		Ch.E. 116—Thermal processes	4
	18		19

SUMMER SESSION

Ch.E. 114—Chem. manufacturing (5 weeks)

SENIOR YEAR

Ch.E. 101—Applied electrochemistry	4	Ch.E. 115—Ind. organic processes	3
Ch.E. 119—Metallography	3	Ch.E. 122—Special problems	3
M.E. 45—Machine elements	3	E.E. 9—A-C machinery	3
E.E. 8—D-C machinery	3	E.E. 102—Economics of engineering	3
Ch.E. electives	3	Ch.E. electives	3
Free electives	2	Free electives	3
Senior conference	0	Senior conference	0
	18		18

This curriculum is subject to change without notice.

CIVIL ENGINEERNG CURRICULUM

LEADING TO THE DEGREE OF BACHELOR OF SCIENCE (CIVIL ENGINEERING)

FRESHMAN YEAR

First Semester	Credits	Second Semester	Credits
Math. 51—Elementary analysis	5	Math. 52—Elementary analysis	5
Drawing 1—Elements of drawing	3	Drawing 2—Elements of drawing	3
Chem. 2a—General chemistry	4	Chem. 2b—General chemistry	4
Engl. 1a—Freshman composition	3	Engl. 1b—Freshman composition	3
C.E. 11—Elementary surveying	2	C.E. 12—Elementary surveying	2
Freshman lectures	0	Freshman lectures	0
Physical activity requirement		Physical activity requrement	
	17		17

SOPHOMORE YEAR

Math. 102a—Calculus	4	Math. 102b—Calculus	4
Physics 51—General physics	5	Physics 52—General physics	5
C.E. 21—Engineering curves	2	Mech. 1, 2—Statics, dynamics	5
C.E. 13—Land surveying	3	C.E. 114—Advanced surveying	3
C.E. 22—Route surveying	3		
	17		17

Six weeks of summer camp, including two weeks of Railway Survey and four weeks of Topographical Engineering.

JUNIOR YEAR

Mech. 3—Mechanics of materials	5	Mech. 52—Materials of construction	2
Mech. 51—Materials of construction	2	Econ. 1a—General economics	4
Drawing 3—Descriptive geometry	3	C.E. 1b—Papers and discussions	1
Geol. 9—Engineering geology	3	C.E. 52—Structural analysis	4
C.E. 1a—Papers and discussions	1	C.E. 132—Highway engineering	3
C.E. 72—Elementary hydraulics	4	C.E. 163—Masonry	2
C.E. 181—Hydrology	2	C.E. 191—Sewerage	2
		Electives	2
		Inspection trip	0
	20		20

SENIOR YEAR

C.E. 2a—Papers and discussions	1	C.E. 2b—Papers and discussions	1
C.E. 53—Structural design	3	C.E. 54—Structural design	2
C.E. 155—Reinforced concrete	3	C.E. 101—Contracts and specifications	2
C.E. 195—Water supply	3	C.E. 164—Substructures	1
M.E. 67—Thermodynamics	2	E.E. 10—D.C. machinery	3
M.E. 77—Heat engine testing	2	E.E. 60—D.C. laboratory	1
Thesis	1	Thesis	2-4
Electives	4	Electives	7-5
Inspection trip	0	Senior conference	0
Senior conference	0		
	19		19

This curriculum is subject to change without notice.

At the beginning of the junior year, students in civil engineering will elect to pursue one of the following groups of studies. At least ten of the elective credits shall be selected from the courses listed below under chosen option, except in the General Option and in the Law Option.

GENERAL OPTION

This option is open to students who do not wish to specialize. All electives are free.

AERONAUTICS OPTION

First Semester		Second Semester	
Mech. 111—Aerodynamics	3	Mech. 112—Airplane stress analysis	3
Mech. 113—Design of airplane parts	2	Mech. 114—Propeller theory	2
M.E. 38—Welding	2	Meteor. 110—Aeronautical meteorology	1
M.E. 119—Airplane engines	2	M.E. 130—Airplane engine testing	1

EROSION CONTROL OPTION

Agric. Engr. 106—Soil erosion	4	C.E. 183—Hydraulic design	2
Agric. Econ. 117—Land economics	3	Geol. 136—Principles of erosion	3
C.E. 182—Hydrological investigations	2		

HIGHWAY OPTION

C.E. 133—Advanced highway design	3	C.E. 134—Highway materials testing	3
C.E. 135—Highway maintenance	2	C.E. 162—Highway bridges	2
C.E. 141—City planning	2	C.E. 141—(repeated)	2
C.E. 144—Municipal engr. practice	2	Mech. 110—Soil mechanics	2
Econ. 168—Highway transportation	3		

HYDRAULIC OPTION

C.E. 173—Advanced hydraulics	2	C.E. 174—River and irrigation hydraulics	2
C.E. 176—Testing hydraulic machines	2	C.E. 175—Hydraulic machinery	2
C.E. 182—Hydrological investigations	2	C.E. 183—Hydraulic design	2
C.E. 184—Waterpower engineering	3		

LAW OPTION

Students desiring to take civil engineering as a pre-law course are referred to the statement on "The Six-Year Course in Engineering and Law," page 332 in this bulletin. Such students take 2 credits in the field of the social sciences during the second semester of the junior year. During the senior year they will take 13 credits of law and 19 credits of engineering.

MUNICIPAL OPTION

C.E. 141—City planning	2	C.E. 141—(repeated)	2
C.E. 144—Municipal engr. practice	2	C.E. 174—River and irrigation hydraulics	2
C.E. 192—Sewage treatment and municipal waste disposal	1	C.E. 192—(repeated)	1
C.E. 193—Water and sewage analysis	3	C.E. 194—(repeated)	1
C.E. 194—Sanitary engr. seminar	1		

RAILWAY OPTION

C.E. 180—Independent problems	2	C.E. 180—(repeated)	2
M.&M. 101—Excavation and tunneling	3	Econ. 136—Transportation problems	3
Econ. 1b—General economics	4	Econ. 142—Public utilities	3
Econ. 135—Railway transportation	2-3	Econ. 189—Railway rates and traffic	2-3

SANITARY OPTION

Agric. Bact. 1—General survey	4	Agric. Bact. 2—(Agric. Bact. 1 repeated)	4
C.E. 180—Independent problems	1-5	C.E. 180—(continued)	1-5
C.E. 192—Sewage treatment and municipal waste disposal	3	C.E. 192—(continued)	3
C.E. 193—Water and sewage analysis	3	C.E. 194—(continued)	1
C.E. 194—Sanitary engineering seminar	1		

STRUCTURAL OPTION

C.E. 156—Reinf. concrete arch design	2	C.E. 158—Stresses in higher structures	2
C.E. 157—Stresses in higher structures	2	C.E. 161—Reinf. concrete building design	2
Mech. 101—Advanced statics	2	C.E. 162—Highway bridges	2
Mech. 106—Advanced mechanics of materials	1	Mech. 108—Advanced materials of construction	2

INSPECTION TRIPS

Junior Trip, 2nd semester. Prerequisites: C.E. 22, C.E. 163, Mech. 52 or concurrent registration.

Senior Trip, 1st semester. Prerequisites: C.E. 52, C.E. 71 and C.E. 191.

ELECTRICAL ENGINEERING CURRICULUM

LEADING TO THE DEGREE OF BACHELOR OF SCIENCE (ELECTRICAL ENGINEERING)

FRESHMAN YEAR

First Semester	Credits	Second Semester	Credits
Math. 51—Elementary analysis	5	Math. 52—Elementary analysis	5
Drawing 1—Elements of drawing	3	Drawing 2—Elements of drawing	3
Chem. 2a—General chemistry	4	Chem. 2b—General chemistry	4
Engl. 1a—Freshman composition	3	Engl. 1b—Freshman composition	3
Speech 8	2	Speech 8	2
Freshman lectures	0	Freshman lectures	0
Physical activity requirement		Physical activity requirement	
	17		17

SOPHOMORE YEAR

Math. 102a—Calculus	4	Math. 102b—Calculus	4
Physics 53—Mechanics	3	Physics 54—Heat, wave motion, sound, and light	3
Drawing 3—Descriptive geometry	3	E.E. 1—Electrodynamics	4
Econ. 1a—General economics	4	E.E. 51—Electrodynamics lab.	2
Elective—C.E. 118 recommended	3	M.E. 32—Genl. indust. machine practice	2
		Non-professional elective	3
	17		18

JUNIOR YEAR

Mech. 1, 2—Statics, dynamics	5	Mech. 3—Mechanics of materials	5
Physics 55—Adv. electricity, magnetism	3	E.E. 3—Alternating current theory	4
E.E. 2—Direct current machinery	4	E.E. 112—Electrical conduction in gases	4
E.E. 52—Direct current laboratory	2	M.E. 64—Heat-power engineering	3
M.E. 63—Thermodynamics	3	M.E. 74—Elementary testing	2
Electives	3		
	20		18

M.E. 64 and M.E. 74 or Mech. 3 may be deferred to the senior year.

SENIOR YEAR

E.E. 4—Alternating current machinery	4	Physics 56—Adv. electricity, light	3
E.E. 54—Alternating current lab.	2	E.E. 25—Engineering papers	2
C.E. 71—Elementary hydraulics	3	or	
Mech. 53—Materials of construction	2	Mech. 53—Materials of construction	(2)
or		M.E. 45—Machine elements	3
E.E. 25—Seminar	(2)	Electives	11
M.E. 75—Adv. heat engine testing	1	Senior conference	0
Electives	8		
Senior conference	0		
	20		19

This curriculum is subject to change without notice.

ELECTIVES

Of the 28 elective credits,—

10 may be elected without restriction.

12 must be elected in subjects which are non-professional in the sense that they are not prerequisite to the more technical phases of engineering work,—in subjects such as economics, political science, history, literature, languages, logic, ethics, psychology, philosophy, sociology, geology, and the like.

6 must be selected from the following group of electrical applications:

First Semester	Credits	Second Semester	Credits
E.E. 116—Electric circuits	3	E.E. 104—Electric machine design	3
E.E. 133—Illumination and photometry	3	E.E. 120—High tension testing	3
E.E. 137—Power distribution	3	E.E. 122—Electric meters	3
E.E. 154—Elements of radio communication	3	E.E. 127—Central stations	3
E.E. 155—Thermionic vacuum tube circuits	3	E.E. 156—Elements of wire communication	3
E.E. 180—Advanced independent studies	3-5	E.E. 157—Radio circuit analysis and design	3
E.E. 213—Electric machine theory	3	E.E. 180—Advanced independent studies	3-5
		E.E. 214—Advanced dynamo laboratory	3
		E.E. 232—Advanced electric circuits	3

MECHANICAL ENGINEERING CURRICULUM

LEADING TO THE DEGREE OF BACHELOR OF SCIENCE (MECHANICAL ENGINEERING)

FRESHMAN YEAR

First Semester	Credits	Second Semester	Credits
Math. 51—Elementary analysis	5	Math. 52—Elementary analysis	5
Drawing 1—Elements of drawing	3	Drawing 2—Elements of drawing	3
Chem. 2a—General chemistry	4	Chem. 2b—General chemistry	4
Engl. 1a—Freshman composition	3	Engl. 1b—Freshman composition	3
Elective	2	Elective	2
Freshman lectures	0	Freshman lectures	0
Physical activity requirement		Physical activity requirement	
	17		17

SOPHOMORE YEAR

Math. 102a—Calculus	4	Math. 102b—Calculus	4
Physics 51—General physics	5	Physics 52—General physics	5
M.E. 25—Methods in metal processing	2	†Drawing 3—Descriptive geometry	3
†M.E. 33—Foundry	1	Mechanics 1, 2—Statics, dynamics	5
M.E. 41—Mechanism	4	M.E. 42—Machine design practice	1
	16		18

JUNIOR YEAR

Mech. 3—Mechanics of materials	5	E.E. 6—Electrical machinery	3
Mech. 53—Materials of construction	2	E.E. 56—D-C laboratory	2
†M.E. 27 or 37—Applied production or welding	2	†C.E. 71—Elementary hydraulics	3
M.E. 43—Machine elements	4	M.E. 44—Advanced machine design	4
M.E. 61—Thermodynamics	4	M.E. 62—Heat-power equipment	4
‡Electives	3	M.E. 52—Machine testing	2
		M.E. 72—Heat-power laboratory	2
	20		20

SENIOR YEAR

E.E. 7—Electrical machinery	3	Ch.E. 8—Metallography	2
E.E. 57—A-C laboratory	2	M.E. 106—Power-plant economics and design	3
M.E. 73—Advanced heat-power testing	2	M.E. 124—Advanced heat-power testing	1
M.E. 105—Manufacturing and production methods	2	‡Electives	13
M.E. 107—Heat-power calculations	2	Senior conference	0
†Economics elective	3		
‡Electives	5		
Senior conference	0		
	19		19

†Can be deferred.

‡General electives must include at least two credits in advanced Hydraulic Engineering and two credits from Mechanical Engineering courses numbering 100 or over.

It is recommended that the remaining electives be on subjects not closely related to technical engineering work. However, should the student desire to select his electives in the Engineering College, he should secure the special counsel of his adviser.

This curriculum is subject to change without notice.

CURRICULA IN MINING ENGINEERING AND MINING GEOLOGY

LEADING TO THE DEGREE OF BACHELOR OF SCIENCE (MINING ENGINEERING)

and

CURRICULUM IN METALLURGICAL ENGINEERING

LEADING TO THE DEGREE OF BACHELOR OF SCIENCE (METALLURGICAL ENGINEERING)

FRESHMAN YEAR

First Semester	Credits	Second Semester	Credits
Math. 51—Elementary analysis	5	Math. 52—Elementary analysis	5
Drawing 1—Elements of drawing	3	Drawing 2—Elements of drawing	3
Chem. 1a—General chemistry	5	Chem. 1b—General chemistry	5
Engl. 1a—Freshman composition	3	Engl. 1b—Freshman composition	3
C.E. 118—Surveying	2	M.&M. 12—Mine surveying	2
Freshman lectures	0	Freshman lectures	0
Physical activity		Physical activity	
	18		18

SOPHOMORE YEAR

Math. 102a—Calculus	4	Math. 102b—Calculus	4
Physics 51—General physics	4	Physics 52—General physics	4
Geology 9—Engineering geology	3	Drawing 3—Descriptive geometry	3
M.&M. 101—Excavation and tunneling	3	Geology 9—Engineering geology	3
M.&M. 122—Principles of metallurgy	5	M.&M. 121—Assaying	5
	19		19

In order to prepare the student for specialized work in one of the three fields—mining engineering, metallurgical engineering, or mining geology—three options are offered at the beginning of the junior year. From one of these he will select a major to consist of from 25-35 credits and from another a minor of 15-20 credits. The work in mechanics and physical chemistry is required of all students in the department.

MINING GROUP

M.&M. 103, 104, 105, 106, 107, 109, 123, 127, 130 (2nd. sem.), 210.
Geology 6, 114.
C.E. 60, M.E. 63 and 64.
E.E. 8 and 9, Economics 1a.

METALLURGY GROUP

M.&M. 109, 123, 124, 125, 127, 128, 130, 131, 135, 140, 147, 148.
C.E. 60, E.E. 8 and 9, M.E. 63 and 64, Economics 1a.

MINING GEOLOGY GROUP

Geology 6, 52, 108, 114, 115, 117, 123, 138, 139, 141, 150, 151.

No subject listed in the student's major group may be used to satisfy his minor requirement.

Typical junior and senior elections are shown below for each of the three options. These are **suggested** outlines and other courses may be carried within the general rule of major, minor, and free electives.

SUGGESTED SEQUENCE

MINING OPTION

JUNIOR YEAR

First Semester	Credits	Second Semester	Credits
M.&M. 103—Mining methods	3	M.&M. 103—Mining methods	3
M.&M. 123—Metallurgy of copper, lead, and zinc	5	M.&M. 127—Hydrometallurgy	5
Mech. 4—Statics, dynamics	4	Mech. 5—Mechanics of materials	3
Geol. 6—Mineralogy	5	Mech. 53—Materials of construction	2
Chem. 130—Physical chemistry	2	Chem. 130—Physical chemistry	2
Chem. 131—Physical chem. lab.	1	Chem. 131—Physical chem. lab.	1
	20	Geol. 6—Mineralogy	3
			19

SENIOR YEAR

M.&M. 105—Mine engineering	3	M.&M. 105—Mine engineering	3
M.&M. 107—Mineral dressing	5	M.&M. 130—Physical chem. of metals and minerals	3
M.&M. 109—Mine and smelter administration	4	M.&M. 210—Adv. ore dressing	3
M.&M. 124—Metallurgy of iron and steel	3	E.E. 9—Electrical machinery	3
E.E. 8—Electrical machinery	3	C.E. 60b—Structural design	2
C.E. 60a—Structural design	2	Senior conference	0
Senior conference	0		17
	20		

METALLURGY OPTION

JUNIOR YEAR

M.&M. 123—Metallurgy of copper, lead, and zinc	5	M.&M. 127—Hydrometallurgy	5
M.&M. 124—Metallurgy of iron and steel	3	M.&M. 128—Iron and steel lab.	3
M.&M. 125—Metallurgy of minor metals	2	M.&M. 130—Physical chem. of metals and minerals	3
M.&M. 130—Physical chem. of metals and minerals	3	Mech. 5—Mechanics of materials	3
Mech. 4—Statics, dynamics	4	Mech. 53—Materials of construction	2
Chem. 130—Physical chemistry	2	Chem. 130—Physical chemistry	2
Chem. 131—Physical chem. lab.	1	Chem. 131—Physical chemistry lab.	1
	20		19

SENIOR YEAR

M.&M. 107—Mineral dressing	5	M.&M.—Mineral valuation	3
M.&M. 109—Mine and smelter administration	4	M.&M.—Foundry metallurgy	3
M.&M. 135—Metallurgical calculations	3	M.&M. 147—Alloy structures	3
M.&M. 140—Heat treatment of soft and medium steels	3	M.&M. 148—X-Ray analysis	3
E.E. 8—Electrical machinery	3	M.&M. 210—Adv. ore dressing	3
Senior conference	0	E.E. 9—Electrical machinery	3
	18	M.E. 34—Adv. foundry practice	2
		Senior conference	0
			20

MINING GEOLOGY OPTION

JUNIOR YEAR

First Semester	Credits	Second Semester	Credits
Geol. 6—Mineralogy	5	Geol. 6—Mineralogy	3
Geol. 114—Structural geology	5	M.&M. 103—Mining methods	3
Chem. 130—Physical chemistry	2	Mech. 5—Mechanics of materials	3
Chem. 131—Physical chem. lab.	1	Mech. 53—Materials of construction	2
M.&M. 103—M ning methods	3	Chem. 130—Physical chemistry	2
Mech. 4—Statics, dynamics	4	Chem. 131—Physical chem. lab.	1
		Geology courses in above group	5
	20		19

SENIOR YEAR

M.&M. 107—Mineral dressing	5	M.&M. 104—Mineral valuation	3
M.&M. 124—Metallurgy of iron and steel	3	M.&M. 210—Adv. ore dressing	3
Geol. 108—Petrology	5	Geol. 108—Petrology	5
Geol. 117—Pre-cambrian geology	2	Geology from group above and electves	6
Geology from group above and electives	5	Senior conference	0
Senior conference	0		
	20		17

Note:—Preferably at the end of the junior year, all students in the department are required to take a six-weeks' trip, inspecting operaions in important mining and metallurgical centers in this country.

The foregoing curricula are subject to change without notice.

DEPARTMENTS OF INSTRUCTION

Abbreviations used in the announcement of courses:

Yr—a continuous course extending through two semesters; I—course given during the first semester; II—course given during the second semester; I, II—semester course given each semester; cr—number of credit hours per semester; *—credit to be arranged

Courses numbered under 100 may be credited only by undergraduates; those in the 100-group may be credited by both undergraduates and graduates; those in the 200-group are ordinarily open only to graduates.

The unit of reckoning the credit is one hour of classroom work per week. Two hours of drawing, laboratory, field, or shop work (which require little outside preparation) count as one hour of classroom work.

For courses required in the engineering curricula but given in the College of Letters and Science, see the bulletin of that college or the general catalogue.

CHEMICAL ENGINEERING

PROFESSORS HOUGEN—*chairman*, KOWALKE; ASSOCIATE PROFESSOR RAGATZ; ASSISTANT PROFESSORS ALTPETER, KROMBHOLZ; INSTRUCTORS GORDON, HOERIG, NEILL, ROWE.

8. METALLOGRAPHY FOR MECHANICAL ENGINEERS. II; 2 cr. The micro-structure of steels and metals used in machine construction. Not open to chemical engineers. Lab. fee $6.00; deposit $1.00. Mr. Ragatz, Mr. Krombholz, Mr. Gordon, Mr. Rowe.

12. TECHNICAL ANALYSIS. I, II; 2 cr. Examination of fuels, gases, and water. Prerequisite: Chemistry 11 or 14. Laboratory fee, $6.00; deposit, $2.00. Mr. Neill, Mr. Hoerig, Mr. Krombholz.

15. INDUSTRIAL CHEMISTRY. I; 3 cr. II; 2 cr. The technology of selected chemical industries. Prerequisite: Chemistry 120 or concurrent enrollment. For Chemistry Course majors. Mr. Altpeter.

18. FUNDAMENTALS OF CHEMICAL ENGINEERING. I, II; 2 cr. The applications of the laws of gases, density, solubility, and chemical combination. Prerequisites: Math. 52, Chem. 14. Mr. Kowalke, Mr. Neill, Mr. Hoerig.

20. INDUSTRIAL CHEMISTRY. I; 3 cr. The chemical, economic, and engineering aspects of selected industries. Prerequisites: Chem. 1b and Chem. 120 or concurrent registration. Mr. Kowalke, Mr. Hoerig, Mr. Neill.

101. APPLIED ELECTROCHEMISTRY. I; 4 cr. The principles of electrolysis and their applications to electroplating, refining of metals, and chemical manufacture. Prerequisite: Physics 52. Laboratory fee $6.00. Mr. Krombholz, Mr. Neill.

111. MANUFACTURING OPERATIONS. Yr; 6 cr. The principles and laws governing fluid flow, distillation, filtration, drying, gas absorption, mechanical separation of materials, etc. Prerequisites: Math. 55 and Ch.E. 18. Mr. Kowalke, Mr. Altpeter.

113. GAS MANUFACTURE AND DISTRIBUTION. I; 2 cr. The conversion of coal and oil into gas and its commercial utilization. Prerequisite: Senior standing. Mr. Kowalke.

114. CHEMICAL MANUFACTURE. 4 cr. Manufacture of chemicals, recovery of products from waste materials, tests on machinery and equipment. Prerequisites: Chem. 14 and Ch.E. 111. Required for chemical engineers as summer work; elective for other students. Laboratory fee $12.00. Mr. Kowalke and staff.

115. Industrial Organic Processes. II; 3 cr. Projects on the quantitative applications of organic chemistry. Prerequisites: Chem. 120 and Ch.E. 111. Mr. Hoerig.

116. Thermal Processes. II; 4 cr. Application of laws and principles of the solution of thermal problems in the chemical industries. Prerequisites: Ch.E. 18 and 117. Mr. Ragatz, Mr. Krombholz, Mr. Neill.

117. Chemical Engineering Measurements. I; 3 cr. Measurement and control of temperature, liquid composition, fluid pressure, etc. Prerequisites: Physics 52, Ch.E. 18. Mr. Ragatz and staff.

118. Chemical Engineering Thermodynamics. I; 3 cr. The applications of classical and chemical thermodynamics in the chemical industries. Mr. Hougen.

119. Metallography. I; 3 cr. The microscopic examination and microphotography of metals and technical alloys, theories of solidification and constitution and the effects of heat treatment. Prerequisites: Ch.E. 20, Mechanics 54. Mr. Ragatz, Mr. Rowe, Mr. Gordon.

121. Chemical Plant Projects. II; 3 cr. Practice in laying out processes, choice of materials of construction, and calculations of sizes of equipment, etc. Prerequisite: Ch.E. 111. Mr. Hougen, Mr. Kowalke.

122. Special Problems. II; 3 cr. Assigned problems involving opportunity for extended independent effort. Prerequisites: Ch.E. 101, 111, 119. Laboratory fee $9.00. Staff.

124. Industrial Microscopy. I; 3 cr. Microscopic and microchemical examination of selected industrial products. Prerequisites: Physics 52 and Chem. 120. Laboratory fee $7.00. Mr. Altpeter.

126. Metallography of Alloy Steels. II; 2 cr. Prerequisite: Ch.E. 119. Mr. Ragatz.

128. Advanced Metallographic Technique. II; 1 cr. Prerequisite: Ch.E. 119. Laboratory fee $3.00. Mr. Ragatz.

129. Advanced Electrochemistry. II; 2 cr. The application of the principles of electrochemistry to the refining of metals and their recovery from ores. Mr. Krombholz.

130. Heat Transmission. I; 3 cr Theories and applications to the design of equipment and process calculations. Mr. Hougen.

180. Advanced Independent Studies. Yr; 1-3 cr. Readings and conferences on assigned topics. Mr. Hougen, Mr. Kowalke, Mr. Ragatz.

200. Research. *cr. Assigned experimental and library investigation with conferences and reports. Laboratory fee $3.00 per credit. Mr. Altpeter, Mr. Hougen, Mr. Kowalke, Mr. Krombholz, Mr. Ragatz.

231. Seminar. Yr; 2 cr. A study of various problems in chemical engineering. Mr. Kowalke.

232. Corrosion. II; 2 cr. Reading course. Mr. Krombholz.

280. Advanced Independent Study. I, II; *cr. Staff.

CIVIL ENGINEERING

Professors Kinne, Rader, Van Hagan—*chairman*, Woodburn; Associate Professors Kessler, Owen; Assistant Professors Cottingham, Lenz; Instructors Dodge, Voelker, Wagner, Walton; Lecturers Nichols, Zapata.

GENERAL

(Note—Old course numbers are shown in parentheses)

1a. JUNIOR REPORTS. I; 1 cr. (Engr. Engl. 1a) Practice in preparing technical papers and reports. Prerequisite: English 1b. Mr. Van Hagan.

1b. JUNIOR REPORTS. II; 1 cr. (Engr. Engl. 1b) Follows course 1a.

2a. SENIOR REPORTS. I; 1 cr. (Engr. Engl. 2a) Follows course 1b.

2b. SENIOR REPORTS. II; 1 cr. (Engr. Engl. 2b) Follows course 2a.

101. CONTRACTS AND SPECIFICATIONS. II; 2 cr. (Engr. Cont. & Spec. 101). Engineering relations,—legal, contractual, and personal. Preparation of contracts, specifications, and other engineering papers. Prerequisite: Senior standing. Mr. Kessler and lecturers.

102. ESTIMATES. II; 2 cr. (Ry. 112). Practice in scaling quantities and preparing estimates of cost. Prerequisite: Junior standing. Mr. Van Hagan.

103. ECONOMIC SELECTION. I; 2 cr. (Ry. 105). The application of economic principles to engineering problems. Prerequisite: Junior standing. Mr. Van Hagan.

SURVEYING

11. ELEMENTARY SURVEYING. I; 2 cr. (T.E. 1). Theory and practice in taping and leveling. Lab. fee $4.50. Mr. Owen.

12. ELEMENTARY SURVEYING. II; 2 cr. (T.E. 2). Adjustment and use of the level, compass, and transit. Lab. fee $4.50. Mr. Wagner.

13. LAND SURVEYING. I; 3 cr. (T.E. 3). Field and office work in land surveying and city platting. Adjustment and use of the sextant and plane table. Prerequisites: Trigonometry and C.E. 12. Lab. fee $3.00. Mr. Owen.

114. ADVANCED SURVEYING. II; 3 cr. (T.E. 104). Field and office work in mining, topographic and hydrographic surveying, steam gauging, and field astronomy. Prerequisite: C.E. 13. Lab. fee $4.50. Mr. Owen.

116. SUMMER SURVEY. (T.E. 106). Four weeks of field and office practice in summer camp. Prerequisite: C.E. 114 or its equivalent. Registration fee $19.00; lab. fee $6.00. Mr. Owen, Mr. Wesle, Mr. Beebe, Mr. Wagner, and Instructors.

117. TOPOGRAPHIC ENGINEERING. II; 3 cr. (T.E. 107). Theory and practice in surveying for non-engineering students. Use of tape, level, transit, plane table, and compass. Lab. fee $4.50. Mr. Wagner.

118. SHORT COURSE IN SURVEYING. I, II; 3 cr. (T.E. 108). Theory and practice in surveying for electrical and mechanical engineering students. Use of tape, level, and transit. Prerequisite: Trigonometry. Lab. fee $4.50. Mr. Wagner.

TRANSPORTATION

21. ENGINEERING CURVES. I, II; 2 cr. (Ry. 1). The computation and field location of various curves used in civil engineering practice. Prerequisites: Trigonometry, Drawing 1, C.E. 12. Mr. Van Hagan, Mr. Voelker.

22. THEORY OF ROUTE SURVEYING. I; 3 cr. (Ry. 2). The principles of location as applied to canals, highways, railways, pipelines, and similar works. Prerequisite: C.E. 21 or concurrent registration. Mr. Van Hagan, Mr. Voelker.

122. PRACTICE IN ROUTE SURVEYING. (Ry. 22). Two weeks of field and office practice in summer camp. Prerequisites: C.E. 21, 22. Registration fee $9.50; lab. fee $3.00. Mr. Van Hagan, Mr. Voelker.

132. HIGHWAY ENGINEERING. II; 3 cr. (Hwy. 102). Economics; traffic census; drainage; construction and maintenance methods of the various types of road surfaces. Prerequisite: C.E. 21. Mr. Rader.

133. ADVANCED HIGHWAY DESIGN. I; 3 cr. (Hwy. 103). Special problems of an advanced nature in the construction of the modern highway. Prerequisite: C.E. 132 or its equivalent. Mr. Rader.

134. HIGHWAY MATERIALS TESTING. II; 3 cr. (Hwy. 104). The testing of bituminous road materials. Prerequisite: C.E. 132. Lab. fee $6.00. Mr. Rader, Mr. Zapata.

135. HIGHWAY MAINTENANCE. I; 2 cr. (Hwy. 105). Equipment depots; maintenance machinery; shoulder and ditch maintenance; methods of surface maintenance; snowdrift prevention and removal; etc. Prerequisite: C.E. 132. Mr. Rader.

CITY PLANNING*

141. CITY PLANNING. I, II; 2 cr. (C.P. 101). Growth of cities; land subdivision; classes and uses of streets; zoning; parks and playgrounds; regional planning. Mr. Rader.

144. MUNICIPAL ENGINEERING PRACTICE. I; 2 cr. (C.P. 104). Width and arrangement of streets; curb and gutter; sidewalks; street surface details; crowns and intersections; landing fields; trees and shrubs. Prerequisite: C.E. 13. Mr. Rader.

145. TRAFFIC CONTROL. II; 2 cr. (C.P. 105). Street systems; causes of accidents; parking; traffic signals; ordinances; administration. Prerequisite: Junior standing. Mr. Rader.

STRUCTURAL ENGINEERING

52. STRUCTURAL ANALYSIS. II; 4 cr. (Str. 2). Simple bridge stresses. Four recitations. Prerequisite: Mechanics 1. Mr. Kinne, Mr. Cottingham.

53. STRUCTURAL DESIGN. I; 3 cr. (Str. 3). The analysis and design of simple members and connections, roof trusses and plate girders. Prerequisites: C.E. 52, Mechanics 3. Mr. Kinne, Mr. Cottingham.

54. STRUCTURAL DESIGN. II; 2 cr. (Str. 4). The analysis and design of bridge trusses and building frames. Prerequisites: C.E. 52, 53. Mr. Kinne, Mr. Cottingham.

60a. STRUCTURAL DESIGN. I; 2 cr. (Str. 10a). A short course in the designing of roofs and buildings. Designed for students in mechanical, electrical, and mining engineering. Prerequsites: Mechanics 1, 3. Given when demand warrants. Mr. Cottingham.

60b. STRUCTURAL DESIGN. II; 2 cr. (Str. 106). A short course in the analysis and design of reinforced concrete structures. Prerequisites: Mechanics 1, 3. Given when demand warrants. Mr. Cottingham.

155. REINFORCED CONCRETE. I; 3 cr. (Str. 105). Principles of reinforced concrete construction; analysis and problems in design. Prerequisites: Mechanics 1, 3. Mr. Cottingham.

156. REINFORCED CONCRETE. I; 2 cr. (Str. 106). Design and analysis of reinforced concrete arches. Prerequisites: Mechanics 1, 3. Mr. Kinne.

157. STRUCTURAL ANALYSIS. I; 3 cr. (Str. 107). Statically indeterminate structures. Analysis of swing, cantilever, arch, and suspension bridges. Prerequisite: C.E. 52. Mr. Kinne.

*Students desiring work in planning and planting of public grounds, parks, and home grounds, see courses in Horticulture, College of Agriculture.

158. Structural Analysis. II; 2 cr. (Str. 108). Problems in statically indeterminate structures, rigid frame analysis, and secondary stresses. Prerequisites: C.E. 52, 157. Mr. Kinne.

161. Reinforced Concrete. II; 2 cr. (Str. 111). Analysis and problems in building design. A continuation of Struct. Engr. 155, which is prerequisite. Mr. Kinne.

162. Highway Bridges and Culverts. II; 2 cr. (Str. 112). Analysis and design of highway bridges and culverts. Elective for senior civil engineers and graduates in civil engineering. Prerequisites: C.E. 52, 53, 155. Given when demand warrants. Mr. Cottingham.

163. Masonry. II; 2 cr. (Ry. 110). The design and construction of dams, walls, and similar masonry structures. Prerequisites: Mechanics 3 and 51. Mr. Van Hagan, Mr. Voelker.

164. Substructures. II; 1 cr. (Ry. 111). The principles of foundation design and construction. Prerequisite: C.E. 163 or concurrent registration. Mr. Van Hagan.

HYDRAULIC ENGINEERING

71. Hydraulics. I, II; 3 cr. (Hyd. 1). The elementary principles of engineering hydraulics, and the theory, calibration and use of instruments for hydraulic measurements. Required of junior mechanical and senior electrical engineering students. Recitations, lectures, and laboratory work. Prerequisites: Mechanics 1, 2. Lab. fee $2.00. Mr. Woodburn, Mr. Kessler, Mr. Lenz, Mr. Walton, Mr. Dodge.

72. Hydraulics. I, II; 4 cr. (Hyd. 2). Similar to course 1, but having additional laboratory work. Required of junior civil engineering students. Prerequisites: Mechanics 1, 2. Lab. fee $3.00. Mr. Woodburn, Mr. Kessler, Mr. Lenz, Mr. Walton, Mr. Dodge.

173. Advanced Hydraulics. I; 2 cr. (Hyd. 115). Special problems of flow of liquids in pipes and open channels of uniform and non-uniform cross section; flow of air and gas; forces exerted by fluids. Prerequisite: C.E. 71 or 72. Mr. Woodburn.

174. River and Irrigation Hydraulics. II; 2 cr. (Hyd. 112). Theory of model experiments on river work. Uniform and non-uniform flow in natural and artificial open channels. Duty of water on irrigated lands. Prerequisite: C.E. 71 or 72. Mr. Woodburn.

175. Hydraulic Machinery. II; 2 cr. (Hyd. 105). The theory of hydraulic motors, pumps, etc., and their economic selection and installation. Prerequisite: C.E. 71 or 72. Mr. Lenz, Mr. Walton.

176. Testing of Hydraulic Machines. I, II; 2 cr. (Hyd. 102). Methods of hydraulic machine testing. Tests are made of water wheels, centrifugal and reciprocating pumps, hydraulic rams, air lift pumps, etc. Laboratory work with occasional lectures and computing periods. Prerequisite: C.E. 71 or 72. Lab. fee $4.00. Mr. Lenz, Mr. Walton.

181. Hydrology. I; 2 cr. (Hyd. 110). Water in its physical, geological, and meteorological relations as applied to water power, water supply, irrigation, drainage, soil erosion, and sanitary engineering. Mr. Lenz, Mr. Walton.

182. Hydrological Investigations. I; 2 cr. (Hyd. 113). Investigation of water supply for power, irrigation, soil conservation, or municipal purposes. Prerequisite: C.E. 71 or 72. Mr. Lenz.

183. Hydraulic Design. II; 2 cr. (Hyd. 114). Design of hydraulic features of water-power plant based on hydrological investigations of Hyd. 182. Prerequisite: C.E. 71 or 72. Mr. Lenz.

184. WATER POWER ENGINEERING. I; 3 cr. (Hyd. 104). The theory, investigation and development of water power. Prerequisite: C.E. 71 or 72. Mr. Lenz.

SANITARY ENGINEERING

191. SEWERAGE. II; 2 cr. (Hyd. 122). The principles of design and maintenance of sanitary and storm sewer systems. Prerequisite: C.E. 71 or 72, or concurrent registration. Fee $2.00. Mr. Kessler, Mr. Walton, Mr. Dodge.

192. SEWAGE TREATMENT AND MUNICIPAL WASTE DISPOSAL. I, II; 1 or 3 cr. (Hyd. 123). Development of disposal works and methods of treatment. If three credits are elected the student will design special features of various treatment plants. Fee $1.00 for 3 credits. Mr. Kessler.

193. WATER AND SEWAGE ANALYSIS. I; 3 cr. (Hyd. 124). Study of laboratory methods of chemical and bacterial analysis and the interpretation of results for sewage and trade wastes. Two recitations and one two-hour laboratory period each week. Lab. fee $3.00. Prerequisites Chem. 2a and 2b, or equivalent. Mr. Nichols, Mr. Walton.

194. SANITARY ENGINEERING SEMINAR. I, II; 1 cr. (Hyd. 126). Review of literature on sanitary engineering, sewage, and trade waste problems. Mr. Kessler.

195. WATER SUPPLY. I; 3 cr. (Hyd. 121). Theory, development, and improvement of water supplies for domestic, manufacturing, and fire service. Prerequisite: C.E. 71 or 72, 181. Mr. Kessler, Mr. Dodge.

ADVANCED INDEPENDENT STUDY

180, 280. See page 331.

UN-NUMBERED COURSES

THESIS. I, II; 3 to 5 cr. undergraduate and 5 to 8 cr. graduate. Required of all students in civil engineering. See page 331. Prerequisite: Senior standing. Staff.

JUNIOR TRIP. Visits, under direction of the faculty, to various industries and construction projects in and about Chicago. Taken in the spring.

SENIOR TRIP. Visits, under direction of the faculty, to structural plants, water supply plants, sewage treatment plants, and highway projects in and about Milwaukee. Taken in the fall.

DRAWING

PROFESSORS MILLAR. ORTH, *chairman*; ASSISTANT PROFESSORS DOKE, LIVERMORE, SHIELS; INSTRUCTORS GRIFFITH, JEDEKA, STREWLER, WORSENCROFT.

1. ELEMENTS OF DRAWING. I, II; 3 cr. Working drawings, third angle projection, lettering, tracing, isometric, and cabinet drawing. Orth, Doke, and Worsencroft's *Mechanical Drawing*. Lab. fee $1.00. Mr. Orth and staff.

2. ELEMENTS OF DRAWING. I, II; 3 cr. Working drawings, lettering, sketching, tracing and blueprinting. Orth, Doke, and Worsencroft's *Mechanical Drawing*. Prerequisite: Drawing 1. Lab. fee $1.00. Mr. Orth and staff.

3. DESCRIPTIVE GEOMETRY. I, II; 3 cr. Fundamental theory of point, line and plane, with application to solids. Generation and classification of lines and surfaces; tangent planes; sections, intersections and developments. Millar and Shiels' *Descriptive Geometry*. Prerequisite: Drawing 2. Mr. Millar, Mr. Shiels, and staff.

7. FREEHAND LETTERING. I, II; 1 or 2 cr. Construction and composition of Classic Roman capitals, "lower case" letters, English Gothic, black letter, and modern script. Special emphasis given to the choice of lettering styles in advertising design. Prerequisite: Drawing 1. Lab. fee $.75. Mr. Doke.

8. ADVANCED FREEHAND LETTERING. I, II; 2 cr. Continuation of Course 7, which is prerequisite. Lab. fee $.75. Mr. Doke.

9. ADVANCED FREEHAND LETTERING. I, II; 1 or 2 cr. Continuation of Course 8 which is prerequisite. Lab. fee $.75. Mr. Doke.

ELECTRICAL ENGINEERING

PROFESSORS BENNETT, PRICE, WATSON, *chairman*; ASSOCIATE PROFESSORS AYRES, TRACY; ASSISTANT PROFESSORS BENEDICT, JOHNSON, KELSO, KOEHLER, LARSON; INSTRUCTORS KUBIAK, MAXFIELD.

1. FUNDAMENTALS OF ELECTRODYNAMICS. I, II; 4 cr. An introductory course for sophomore electrical engineers dealing with the derivation and application of the basic ideas and laws relating to electrostatic and electromagnetic phenomena. Open to students of other colleges. Prerequisites: Physics 53 and Math. 54. Mr. Benedict, Mr. Larson, Mr. Kubiak.

2. DIRECT CURRENT MACHINERY. I, II; 4 cr. A continuation of E.E. 1. Construction and operation of direct current machinery. Prerequisite: E.E. 1. Mr. Watson, Mr. Benedict, Mr. Larson.

3. ALTERNATING CURRENT THEORY. I, II; 4 cr. Single phase and polyphase circuits. Prerequisite: E.E. 2. Lab. fee $3.00. Mr. Price, Mr. Watson, Mr. Tracy.

4. ALTERNATING CURRENT MACHINERY. I, II; 4 cr. Synchronous machinery, transformers, induction motors. A continuation of E.E. 3. Mr. Price, Mr. Watson, Mr. Tracy.

6. ELECTRICAL MACHINERY. II; 3 cr. Deals with the laws of the electric and magnetic circuit and the characteristics of direct current machinery. Primarily for mechanical engineers. Prerequisite: Physics 52. Mr. Ayres, Mr. Kelso.

7. ELECTRICAL MACHINERY. I; 3 cr. Alternating current theory and machinery. Primarily for mechanical engineers. Prerequisite: E.E. 6. Mr. Ayres, Mr. Kelso.

8. ELECTRICAL MACHINERY. I; 3 cr. Laws of the electric and magnetic circuit and the characteristics of direct current machinery. Primarily for mining and chemical engineers. Prerequisite: Physics 52. Lab. fee $3.00. Mr. Larson, Mr. Maxfield.

9. ELECTRICAL MACHINERY. II; 3 cr. Alternating current theory and machinery. Primarily for mining and chemical engineers. Prerequisite: E.E. 8. Lab. fee $3.00. Mr. Larson, Mr. Maxfield.

10. DIRECT CURRENT MACHINERY. II; 3 cr. Primarily for civil engineers. Mr. Larson.

25. ENGINEERING PAPERS. I, II; 2 cr. Preparation and presentation of technical papers. Open to engineering seniors. (Not offered during 1940-41.)

101. ECONOMICS OF ENGINEERING. I; 3 cr. (Engr. Econ. 101) The application of the fundamental principles of economics to engineering problems, rate structures, etc. Prerequisite: Junior standing.

102. ECONOMICS OF ENGINEERING. II; 3 cr. (Engr. Econ. 102) Economic analysis of problems of engineering and industry. Estimates, valuation, economic selection, economics of production and distribution. Administration of enterprises. Reports, budgets, administrative control. Prerequisite: Sophomore standing. Mr. Ayres.

104. Electric Machine Design. II; 3 cr. Individual design of a direct or an alternating current machine. Prerequisite: E.E. 2. Given when demand warrants. Mr. Watson.

107. Seminar. (Formerly Engr. Admin. 103.) I, II; 2 cr. Investigations of engineering problems reaching into the field of business, economics, and sociology. Review of outstanding contributions in the field of engineering economics. Prerequisite: Senior or graduate standing. Mr. Ayres.

112. Electrical Conduction in Gases. I, II; 4 cr. Treats of the underlying phenomena occurring in devices and apparatus in which electricity passes through gaseous conductors or evacuated vessels. With laboratory work. Prerequisite: E.E. 2 or Physics 52 or 55. Lab. fee $3.00. Mr. Benedict, Mr. Maxfield.

116. Electric Circuits. I; 3 cr. Analytical and oscillograph study of starting currents of transformers and transmission lines; distribution of current and voltage in loaded and unloaded telephone lines. Prerequisite: E.E. 3. Lab. fee $3.00. Mr. Bennett, Mr. Benedict.

120. Insulation and High Tension Testing. II; 3 cr. Dielectric theory. Properties and laboratory tests of insulators and insulating materials. Prerequisite: E.E. 3. Lab. fee $3.00. Mr. Bennett, Mr. Benedict.

122. Electric Meters. II; 3 cr. Analytical study of instruments; methods of calibration and measurement; watthour meters and their application; instrument transformers; and relays. Laboratory work in Electrical Standards Laboratory. Prerequisite: E.E. 3. Lab. fee $3.00. Mr. Johnson.

127. Electrical Central Stations. II; 3 cr. Central station design: technical problems of electric power networks. Prerequisite: E.E. 3. Mr. Ayres.

133. Illumination and Photometry. I; 3 cr. Commercial illuminants and their applications to lighting. Design of illuminating systems. Lectures and laboratory work. Lab. fee $3.00. Mr. Johnson.

137. Power Distribution. I; 3 cr. Power distribution design: technical and economic design of overhead and underground distribution systems; transmission line design and operation. Prerequisite: E.E. 3. Mr. Ayres.

154. Elements of Radio Communication. I; 3 cr. The properties of circuits and devices used in radio communication. With laboratory work. Prerequisite: E.E. 3 or senior standing in physics. Lab. fee $3.00. Mr. Koehler.

155. Thermionic Vacuum Tube Circuits. I; 3 cr. An experimental and analytical study of amplifier and oscillator circuits and of the performance of the thermionic vacuum tube in telephone and radio networks. With laboratory work. Prerequisite: E.E. 3 or senior standing in physics. Lab. fee $3.00. Mr. Koehler.

156. Elements of Wire Communication. II; 3 cr. Theory of telephone and telegraph instruments and circuits. The theory of the long line. With laboratory work. Prerequisite: E.E. 3 or senior standing in physics. Lab. fee $3.00. Mr. Koehler.

157. Radio Circuit Analysis and Design. II; 3 cr. A continuation of E.E. 155. Amplifier design, triode oscillators in parallel, the design of triode oscillators, modulation and demodulation, analysis and design of transmitting and receiving sets. With laboratory work. Prerequisite: E.E. 155. Lab. fee $3.00. Mr. Koehler.

180. Advanced Independent Study. I, II; *cr. See page 331. Staff.

213. Electric Machine Theory. I; 3 cr. Analytical treatment of the behavior of three-phase induction motors and transformers under unbalanced conditions; subsynchronous phenomena in synchronous machines. Prerequisite: E.E. 4. Mr. Tracy.

214. Advanced Dynamo Laboratory. II; 3 cr. Advanced laboratory tests with direct and alternating current machinery. Prerequisites: E.E. 54 and 4. Lab. fee $6.00. Mr. Price.

231. Electric Power Transmission. Yr; 3 cr. Deals with the economic and engineering problems in the design and operation of high voltage power transmission systems. Given when demand warrants. Mr. Bennett.

232. Advanced Theory of Electric Circuits. Yr; 3 cr. An analytical and oscillographic study of the steady-state and transient characteristics of circuits, networks, and long lines; current and flux distribution at high frequencies. Lab. fee $3.00. Mr. Bennett, Mr. Benedict.

233. Seminar in Electric Circuit Theory. Yr; 3 cr. A further development of E.E. 232. Electromagnetic radiation, filter networks, operational methods. Given when demand warrants. Mr. Bennett.

280. Advanced Independent Study. I, II; *cr. See page 331. Staff.

Signal Corps Course. Electrical engineers who enroll in the Signal Corps unit of the Reserve Officers' Training Corps are required to take two 3-credit courses which must be selected from the following group: E.E. 116, 154, 155, 156, 157, 232. Men who enroll in this unit, after satisfactorily completing the course and meeting the military requirements, may be commissioned in the Officers' Reserve Corps if they so desire.

DYNAMO LABORATORY COURSES

Mr. Price and Laboratory Instructors

51. Electrodynamics Laboratory. I, II; 2 cr. Basic electrostatic and electromagnetic experiments and measurements. To accompany E.E. 1. Lab. fee $6.00.

52. Dynamo Laboratory. I or II; 2 cr. Tests of direct current dynamos and appliances. To accompany E.E. 2. Lab. fee $6.00.

54. Alternating Current Laboratory. I, II; 2 cr. Tests of A.C. generators and motors, transformers, converters, and induction motors. To accompany E.E. 4. Lab. fee $6.00.

56. Direct Current Laboratory. II; 2 cr. For mechanical engineers. To accompany E.E. 6. Lab. fee $6.00.

57. Alternating Current Laboratory. I; 2 cr. Primarily for mechanical engineers. Prerequisite: E.E. 7. Lab. fee $6.00.

60. Direct Current Laboratory. II; 1 cr. To accompany E.E. 10. Lab. fee $3.00.

MECHANICAL ENGINEERING

Professors Elliott, Hyland, Larson—*chairman*, L. A. Wilson; Associate Professors Dorrans, Nelson, G. C. Wilson; Assistant Professors McNaul, Rose; Instructors Bridge, Buroker, Colbert, Cromer, Hansen, Harker, Peot, Peters, Puddester, Schneider, Schumann.

(Note—Old course numbers are shown in parentheses)

METAL PROCESSING

25. General Industrial Methods in Metal Processing. I, II; 2 cr. (Shop 6). A study of the common machines and standard methods of production. Fundamentals of lathe work, milling and shaping. Standard cutting materials, methods, and their application. Lab. fee $6.00. Mr. Puddester.

27. Applied Principles of Production. I, II; 2 cr. (Shop 7). Application of jigs, fixtures and dies to manufacturing; also broaching, grinding, and lapping. Application of time-study methods. Lab. fee $6.00. Mr. Puddester.

28. Advanced Industrial Methods. II; 2-4 cr. (Shop 8). Research and problems designed and planned by students may be developed in the shop laboratories. Prerequisite: Course 25. Lab. fee $3.00 per cr. Mr. Puddester.

32. General Industrial Machine Practice. II; 2 cr. (Shop. 12). The use and application to production of such machines as lathes, shapers, and milling machines for electrical engineers. Correlation of time-study with machines and a study of heat-treatment. Lab. fee $6.00. Mr. Puddester.

33. Foundry. I, II; 1 cr. (Shop 13). The principles and practice governing all kinds of metal castings. Sand control, cupola operation, non-ferrous casting, core making molding practice, production methods, casting cleaning, and hazards. Fee $3.00. Mr. Bridge, Mr. Dorrans.

34. Advanced Foundry Practice. II; 2 cr. (Shop 14). Cupola practice, bench and floor production, skin drying, sweep work, non-ferrous metal alloying, core making, foundry equipment, and conveyor systems. Prerequisite: Mech. Engr. 33. Fee $6.00. Mr. Bridge, Mr. Dorrans.

37. Welding. I, II; 2 cr. (Shop 108). Lectures, demonstrations, and practice in the fundamentals of gas, electric arc, thermit, resistance and bronze welding; also the weldability of ferrous and non-ferrous metals. Hard surfacing, metal spraying, methods of testing, stress relief. Fee $6.00. Mr. Peters, Mr. Schumann.

38. Aircraft Welding. I, II; 2 cr. (Aero. 108). Arc and gas welding, with special reference to aircraft construction. Lab. fee $6.00. Mr. Peters, Mr. Schumann.

MACHINE DESIGN

41. Mechanism. I; 4 cr. (Mach. Des. 1). The relative motions of machine parts including linkages, cams, toothed gears, beltings, chains and ratchets. Prerequisites: Drawing 1, 2. Mr. McNaul, Mr. Buroker, Mr. Colbert, Mr. Harker.

42. Design Practice. II; 1 cr. (Mach. Des. 2). Study of the use and application in design of engineering material formulae and tabulated data, together with a discussion of factor of safety, allowable stress, etc. Prerequisite: M.E. 41. Mr. Hyland, Mr. Colbert.

43. Machine Elements. I; 4 cr. (Mach. Des. 3). Study of the application of the principles of mechanics and empirical methods to the design of machine elements for mechanical engineers. Commercial drafting room practice. Prerequisites: M.E. 41, Mechanics 1; Mechanics 3 or concurrent registration. Mr. Hyland, Mr. Buroker.

44. Advanced Machine Design. II; 4 cr. (Mach. Des. 4). A continuation of M.E. 43 applied to the design of complete machines. Prerequisite: M.E. 43. Mr. McNaul, Mr. Buroker.

45. Machine Elements. I, II; 3 cr. (Mach. Des. 5). A study of the mathematical and empirical methods for the design of machine parts, with a parallel drafting course for electrical and chemical engineers. Prerequisites: M.E. 41, Mechanics 1, 3. Mr. Colbert.

52. Machine Testing. II; 2 cr. (Mach. Des. 12). Experimental determinations of the strength of machine elements and the efficiency of machines. Prerequisite: Machine Design 43. Lab. fee $6.00. Mr. McNaul, Mr. Buroker, Mr. Harker.

HEAT POWER

61. THERMODYNAMICS. I; 4 cr. (S. & G. 1). A study of the laws of heat and mechanical energy, followed by a study of vapors, theoretical steam cycles, and refrigeration for mechanical engineers. Prerequisites: Physics 51; Mathematics 102a. Mr. L. A. Wilson, Mr. Elliott, Mr. G. C. Wilson.

62. HEAT-POWER EQUIPMENT. II; 4 cr. (S. & G. 2). Continuation of M.E. 61. A study of fuels and combustion, stokers and boilers, followed by a study of steam engines and turbines, power plant auxiliaries, and internal combustion engines. Prerequisite: M.E. 61. Mr. L. A. Wilson, Mr. Elliott, Mr. G. C. Wilson.

63. THERMODYNAMICS. I; 3 cr. (S. & G. 3). A course in the theory and principles underlying heat-power apparatus for electrical engineers. This course is similar to M.E. 61 except less time is spent on problem work. Prerequisites: Physics 51, 52, 53, or 54; Mathematics 102a, 102b. Mr. Rose, Mr. Hansen, Mr. Schneider.

64. HEAT-POWER ENGINEERING. II; 3 cr. (S. & G. 4). Continuation of M.E. 63. This course is similar to M.E. 62 except that it is more abbreviated. Prerequisite: M.E. 63. Mr. Rose, Mr. Hansen, Mr. Schneider, Mr. Peot.

65. THERMODYNAMICS. I; 3 cr. (S. & G. 5). A course in the theory and principles underlying heat-power apparatus for chemical engineers. This course is similar to course 63 except that it is specially arranged for chemical engineers. Prerequisites: Physics 51, 52, 53, or 54; Mathematics 102a, 102b. Mr. Nelson.

66. HEAT-POWER ENGINEERING. II; 2 cr. (S. & G. 6). Continuation of M.E. 65. A study of stokers, boilers, steam engines, steam turbines, and internal combustion engines. Prerequisite: M.E. 65. Mr. Nelson, Mr. Cromer.

67. THERMODYNAMICS AND HEAT-POWER ENGINEERING. I; 2 cr. (S. & G. 7). A very abbreviated course in the thermodynamics of gases and vapors and their application to the more important types of steam engines, gas engines, and boilers for civil engineers. Prerequisites: Physics 51, 52; Mathematics 102a, 102b; registration in M.E. 77. Mr. Cromer.

72. ELEMENTARY TESTING OF HEAT ENGINES. II; 2 cr. (S. & G. 22). Calibration of instruments, valve setting, and the determination of the efficiencies and characteristics of simple heat engines for mechanical engineers. Prerequisite: Registration in M.E. 62. Lab. fee $8.00, including laboratory manual. Mr. G. C. Wilson, Mr. Schneider, Mr. Rose.

73. ADVANCED TESTING OF HEAT ENGINES. I; 2 cr. (S. & G. 23). Continuation of ery, boilers and power plants. Prerequisite: Mech. Engr. 72. Lab. fee $6.00. Mr. Hansen, M.E. 72, covering more complex types of heat engines, including refrigeration machin- Mr. Peot, Mr. Schneider.

74. ELEMENTARY TESTING. II; 2 cr. (S. & G. 28). Calibration of instruments and the determination of the efficiencies, losses, and characteristics of simple heat engines, turbines, and internal combustion engines for electrical engineers. Prerequisite: Registration in M.E. 64. Lab. fee $8.00, including laboratory manual. Mr. Peot, Mr. Schneider.

75. ADVANCED TESTING OF HEAT ENGINES. I; 1 cr. (S. & G. 29). Continuation of M.E. 74, covering more complex types of heat engines including air compressors, refrigeration machinery, boiler plant, and Diesel engine tests. Lab. fee $3.00. Mr. Nelson, Mr. Hansen, Mr. Peot, Mr. Schneider.

77. HEAT ENGINE TESTING. I, II; 2 cr. (S. & G. 127). Calibration and adjustment of instruments, determination of losses and efficiencies of heat engines, including power plant and refrigeration plant tests for civil and chemical engineers. Prerequisite: Registration in M.E. 66 or 67. Lab. fee $8.00, including laboratory manual. Mr. Nelson, Mr. Cromer, Mr. Peot.

ADVANCED COURSES

100. Senior Thesis. I, II; 1-5 cr. (S. & G. 100). Special problem work in Mechanical Engineering. Prerequisite: Senior standing. Lab. fee $3.00 per credit. Staff.

101. Kinematics and Dynamics of Machinery. II; 2 or 3 cr. (Mach. Des. 101). Concepts of motion, velocity, acceleration, and equilibrium; graphical and analytical solutions; static and inertia forces in machines; effect of stress concentration and fatigue; design of high-speed machines. Mr. McNaul.

105. Manufacturing and Production Methods. I; 2 cr. (Engr. Econ. 105). Factory management; production scheduling and planning; dispatching and manufacturing methods. A general survey of the most suitable material, special tools and fundamental processes of manufacturing. Prerequisite: Senior standing. Mr. McNaul.

106. Power Plant Economics and Design. II; 3 cr. (Engr. Econ. 106). Load curves, selection of power units; power plant layout, building design, equipment selection, estimates, operating charges, fixed charges, etc. Design and estimate of small power plant. Prerequisite: Senior standing. Mr. Hyland.

107. Heat-Power Calculations. I; 2 cr. (S & G. 105). Calculations used in practice for determining size and the more important details of steam engines, boilers, condensers, cooling towers, including fundamental psychrometric calculations. Problems are assigned and discussed and solved in the classroom. Prerequisite: M.E. 62 or 64. Required of senior mechanical engineers. Mr. Larson, Mr. Rose.

108. Heating and Ventilating. I, II; 3 cr. (S. & G. 108). The principles and the theory of modern systems of heating and ventilating buildings of various types, accompanied by problems involving the design and specifications for such systems. Prerequisite: M.E. 62, 64 or 67. Mr. Larson.

109. Internal Combustion Engines. I, II; 3 cr. (S. & G. 109). The theory and design of gas, gasoline, and fuel oil engines with special attention to the high-speed type; also such details as carburetion, fuel injection, and ignition. Prerequisite: M.E. 62 or 64. Mr. G. C. Wilson.

110. Air Conditioning. II; 2-3 cr. (S & G. 110). Theory of air conditioning, including basic calculation for and selection of equipment. Design and specifications for complete systems covering both human comfort and industrial process work. Prerequisite: M.E. 108. Mr. Larson.

112. Refrigeration. I, II; 3 cr. (S. & G. 112). The theory and principles of refrigeration including a study of the selection of equipment, the design and specifications of systems, and the properties of various working substances. Prerequisite: M.E. 62 or 64. Mr. Larson, Mr. L. A. Wilson.

119. Airplane Engines. II; 2 cr. (Aero. 119). Fundamental principles of aircraft engine construction, operation, and maintenance. Study of modern engines, carburetors, ignition systems, starters, and superchargers. Prerequisite: M.E. 61 or 63. Mr. L. A. Wilson.

124. Advanced Heat-Power Testing. II; 1 cr. (S. & G. 124). Continuation of M.E. 73. Dynamometer test of an automotive-type engine, test of an air compressor, test of a blower, measurements of air and steam flow. Prerequisite: M.E. 73. Lab. fee $3.00. Mr. Hansen.

128. Heating and Ventilation Laboratory. II; 2 cr. (S & G. 128). Calibration of heating and ventilating instruments, determination of the efficiencies of ventilating systems and air conditioners, tests of unit heaters, and a study of air infiltration into buildings. Prerequisite: Completion of a beginning heat-power laboratory course. Lab. fee $6.00. Mr. Nelson.

130. AIRPLANE ENGINE TESTING. II; 2 cr. (Aero. 130). Prerequisite: Beginning course in heat-power laboratory. Lab. fee $6.00. Mr. G. C. Wilson.

151, 152, 153, and 154. ADVANCED MECHANICAL ENGINEERING PROBLEMS. Odd numbers I and even numbers II. 1 to 3 cr. each. (S. & G. 151, 154). Research or practical problems worked out in the laboratory. The student works very largely on his own initiative with periodic faculty conferences. Succeeding courses may be a continuation, or they may be entirely different projects. Prerequisite: Completion of a beginning M.E. laboratory course, or permission from the department. Lab. fee $3.00 per credit. Staff.

180. ADVANCED INDEPENDENT STUDY. I, II; *cr. (S. & G. 180). See page 331. Staff.

200. GRADUATE RESEARCH. I, II; 3 to 5 cr. (S. & G. 200). Major research projects which are carried on for credit toward advanced degrees. Prerequisite: Graduate standing in engineering| Lab. fee $3.00 per credit. Staff.

280. ADVANCED INDEPENDENT STUDY. I, II; *cr. (S. &. G. 200). See page 331. Staff.

MECHANICS

PROFESSORS KOMMERS, ROARK, WITHEY—*chairman*; *ASSISTANT* PROFESSOR WENDT; INSTRUCTORS CADWELL, HADDOX, HARTENBERG, LISKA, TAUXE, WASHA.

1. STATICS. I, II; 3 cr. Treated, as are all of the following courses, with special reference to the requirements of engineers. Prerequisite: Physics 51. First nine weeks of each semester.

2. DYNAMICS. I, II; 2 cr. Prerequisites: Mechanics 1; Mathematics 55, or concurrent registration. Last nine weeks of each semester.

3. MECHANICS OF MATERIALS. I, II; 5 cr. Prerequisites: Mechanics 1; Mathematics 55, or concurrent registration.

4. STATICS AND DYNAMICS. I; 4 cr. Prerequisites: Physics 51; Mathematics 55, or concurrent registration. For chemical and mining engineers.

5. MECHANICS OF MATERIALS. II; 3 cr. Prerequisites: Mechanics 1 or 4; Mathematics 55, or concurrent registration. For chemical and mining engineers.

The next three courses are principally laboratory work; assigned readings and reports; and preparation and manufacture of materials.

51. MATERIALS OF CONSTRUCTION. I; 2 cr. Prerequisite: Mechanics 3 or concurrent registration. For civil engineers. Lab. fee $6.00.

52. MATERIALS OF CONSTRUCTION. II; 2 cr. Continuation of 51. Lab. fee $6.00.

53. MATERIALS OF CONSTRUCTION. I, II; 2 cr. Prerequisite: Mechanics 3 or concurrent registration. For chemical, electrical, mechanical, and mining engineers. Lab. fee $6.00.

101. ADVANCED STATICS. I or II; 2 cr. Continuation of Mechanics 1. Advanced problems in equilibrium and in composition and resolution of forces; space frameworks; suspended cables. Prerequisite: Mechanics 1. Mr. Roark.

102. ADVANCED DYNAMICS. I or II; 3 cr. Continuation of Mechanics 2. Kinematics and kinetics of plane, spherical and general motion; linear and angular impulse and momentum; D'Alembert's principle. Prerequisites: Mechanics 2 and 3. Mr. Roark.

106. ADVANCED MECHANICS OF MATERIALS. II; 3 cr. Some topics (curved beams, flat plates, elastic foundations etc.) and analyses not included in Mechanics 3. Prerequisites: Mechanics 2 and 3. Mr. Kommers.

107. MECHANICAL VIBRATIONS. I; 3 cr. General theory; vibration instruments; absorbers; stabilizers; critical speeds; balancing. Prerequisite: Mechanics 2.

108. MATERIALS OF CONSTRUCTION. II; 2-5 cr. Laboratory research on materials. Research on concrete, plain and reinforced. Prerequisites: Mechanics 51 and 52, or 53. Lab. fee $3.00 per cr. Mr. Withey.

109. GRAPHICS. I; 2 cr. The principles of graphical computation, the construction of graphic charts, and the fitting of equations to plotted points. Application is made to various engineering problems. Mr. Kommers.

110. SOIL MECHANICS. II; 2 cr. Soil as an engineering material. Earth pressures bearing capacity, settlement, consolidation, stability, and permeability applied to earth dams, foundations, and highways. Prerequisite: Mechanics 52 or consent of instructor. Lab. fee $2.00. Mr. Tauxe.

111. AERODYNAMICS. I; 3 cr. The wind tunnel, properties of airfoils; airplane controls and propellers; stability and performance. Demonstrations with miniature wind-tunnel and water channel. Prerequisite: Mechanics 2. Mr. Hartenberg.

112. AIRPLANE STRESS ANALYSIS. II; 3 cr. Stress analysis of airplane structures with special reference to governmental requirements. Prerequisites: Mechanics 111 and Mechanics 3. Mr. Roark.

113. DESIGN OF AIRPLANE PARTS. I; 2 cr. Design of spars, struts and other structural elements of airplanes. Aircraft materials. Prerequisite: Mechanics 112. Mr. Roark.

114. PROPELLER THEORY. II; 2 cr. Theories of propeller performance; practical methods of design. Prerequisite: Mechanics 111. Mr. Hartenberg.

180. ADVANCED INDEPENDENT STUDY. I, II; *cr. See page 331. Staff.

280. ADVANCED INDEPENDENT STUDY. I, II; *cr. See page 331. Staff.

MINING AND METALLURGY

PROFESSORS MCCAFFERY, SHOREY; ASSOCIATE PROFESSOR OESTERLE—*chairman*; ASSISTANT PROFESSOR BARKER; INSTRUCTOR ROSENTHAL.

12. MINE SURVEYING. II; 2 cr. Methods of mine surveying, followed by a week's survey of a nearby zinc, iron, or coal mine. Prerequisite: T.E. 108. Lab. fee $4.00. Mr. Shorey.

101. EXCAVATION AND TUNNELING. I; 3 cr. Methods of excavation and tunneling. Earth and rock excavation, explosives, excavating equipment. Methods of earth, rock, and subaqueous tunneling. Prerequisite: Chem. 1a. Mr. Shorey.

103. MINING METHODS. Yr; 3 cr. I. Prospecting, exploring, developing, and operating mines. II. Classroom and drafting room design of a method of mining a selected ore body. Prerequisite: Junior standing. Lab. fee: second semester $1.00. Mr. Shorey.

104. VALUATION OF MINERAL PROPERTIES. II; 3 cr. Methods of evaluating metal, coal, oil, and other mineral properties. Mineral valuation for taxation purposes. Prerequisite: Min. & Met. Engr. 103. Mr. Shorey.

105. MINE ENGINEERING. Yr; 3 cr. The mechanical aspects of mining engineering. Mine transport, hoisting, drainage, ventilation, signaling, and power systems. Headframes and bins. Mine safety. Prerequisites: Min. & Met. Engr. 103, Mechanics 4. Mr. Shorey.

106. INDIVIDUAL PROBLEMS IN DESIGN. I, II; 3 cr. Drafting room design of mining or milling plant and equipment to extract or treat specific ores. Prerequisites: Min. & Met. Engr. 103, 105, 107. Mr. Shorey.

**107. Mineral Dressing. I; 5 cr. Study of the principles of mineral dressing. Includes crushing, classification, and gravity, magnetic, and flotation concentration. Prerequisite: Senior standing. Lab. fee $8.00. Mr. Shorey.

109. Mine and Smelter Administration. I; 4 cr. Administration of mines, mills, and smelters; labor supply and management. Mine, mill, and smelter accounting. Ore sales and contracts. Prerequisite: Senior standing. Mr. McCaffery.

121. Assaying. II; 5 cr. The fire and wet assay of ores, mattes, bullion, and metallurgical byproducts using checked ores and smelter products from American and Canadian operations. Prerequisite: Chem. 1b. Lab. fee $20.00. Mr. Barker.

122. Principles of Metallurgy. I; 5 cr. Study of the fundamental principles of metallurgical engineering. Metallurgical equipment, recovery, and purification. Prerequisite: Chem. 1b. Lab. fee $8.00. Mr. McCaffery, Mr. Oesterle.

**123. Metallurgy of Copper, Lead, and Zinc. I; 5 cr. The various base metal and refining processes for copper, lead, and zinc. The desilverization of lead. Prerequisite: Chem. 1b. Lab. fee $8.00. Mr. Barker.

124. Metallurgy of Iron and Steel. I; 3 cr. The reduction of iron ores and processes of steel making. Control of operations. Rolling mills and shaping. Specifications. Prerequisites: Chem. 1b, Physics 52. Mr. McCaffery.

125. Metallurgy of the Minor Metals. I; 2 cr. The metallurgy of tin, nickel, aluminum, mercury, cadmium, bismuth, and antimony. Recovery of metal from byproducts and secondary sources. Prerequisite: Chem. 1b. Mr. Barker.

126. Clay Products Manufacture. I, II; 2 or 3 cr. Lectures and laboratory practice in clay testing and brick, tile, and ceramics manufacture. The making of Portland cement. Prereuqisite: Physics 52. Fee $4.00 per lab. credit. Mr. Barker.

**127. Hydrometallurgy of Gold, Silver, Copper, Lead, and Zinc. II; 5 cr. Amalgamation, cyanidation and chlorination of the noble metals. Hydrometallurgical treatment of copper, lead, and zinc ores. Production of electrolytic metals and the treatment of byproducts. Prerequisites: Physics 52, Chem. 1b. Lab. fee $8.00. Mr. Barker.

128. Iron and Steel Laboratory. II; 3 cr. The physical properties and structure of irons and low and medium carbon steels as effected by heat treatment and mechanical treatment. Prerequisite: Min. & Met. Engr. 124. Lab. fee $12.00. Mr. Rosenthal.

130. Physical Chemistry of the Metals and Minerals. Yr; 3 cr. The underlying principles of physical metallurgy. Development of equilibrium in binary, ternary, and quaternary systems. Surface reactions and adsorption. Lectures, quiz. Prerequisites: Chem. 1b, Physics 52. Mr. Oesterle.

131. Foundry Metallurgy. II; 3 cr. Foundry materials and furnaces. The manufacture and properties of gray iron, malleable iron, steel, and nonferrous castings. Lectures, quiz, laboratory. Prerequisites: Chem. 1b, Physics 52. Lab. fee $4.00. Mr. Rosenthal.

135. Metallurgical Calculations. I; 3 cr. The calculation of heat balances and charges for iron and steel and non-ferrous metallurgical processes. The control of mineral dressing operations. Prerequisites: Chem. 1b, Physics 52, Min. & Met. Engr. 122. Mr. Barker.

140. Heat Treatment of Soft and Medium Steels. I; 3 cr. A study of the heat treatment of carbon and low-alloy steels. Commercial heat treatment. Prerequisites: Chem. 1b, Physics 52. Mr. Oesterle.

**Note:—Advanced students from other technical divisions of the University may take Min. & Met. Engr. 107, 123, 127 for 3 credits only (no lab.).

147. Alloy Structures. II; 3 cr. Lectures and laboratory practice illustrating fundamental properties of the metals and alloys from the viewpoint of complete metallic systems. Prerequisites: Min. & Met. Engr. 122, 124. Lab. fee $4.00. Mr. Oesterle.

148. X-Ray Studies in Metallurgy. II; 3 or more credits. Application of diffraction analysis using a residual gas tube with variable anodes to the study of lattice constants of metallurgical alloys. Interpretation of radiographic photographs. Prerequisite: Senior standing. Fee $4.00 per lab. credit. Mr. Oesterle.

180. Advanced Independent Study. I, II; *cr. See page 331. Staff.

210. Advanced Ore Dressing. I, II; 2 to 5 cr. Application of the flotation process to the treatment of metallic and non-metallic ores:—or detailed laboratory research to discovery of a method of treating a selected ore. The particular application of principles covered in outline by Mining 107. Lab. fee $4.00 per lab. credit. Mr. Shorey.

225. Metallurgical Laboratory. I, II; 2 to 5 cr. Detailed research problems covering selected metallurgical processes. The particular application of one or more of the metallurgical principles outlined by courses 122, 124. Lab. fee $4.00 per credit. Mr. Oesterle.

230. Advanced Physical Chemistry of the Metals. Off-campus, I, II; 3 cr. An advanced treatment of the principles of physical metallurgy, and the direct application of these principles to metallurgical practice. Mr. Oesterle.

231. The Iron Blast Furnace. I; 5 cr. The construction of the furnace and accessory apparatus. The reactions in the furnace and factors influencing control of the process. Problems in furnace design. Mr. McCaffery.

232. Converter and Open-Hearth Steel. II; 5 cr. The order of reaction as affected by temperature, factors which control the process, and quality of product, design of the converter and open-hearth plant. Mr. McCaffery.

233. Heat Treatment of Steels in General. Off-campus, 3 cr. The heat treatment considered from the broader viewpoint of composition, furnace atmosphere, grain size, furnaces, etc. Mr. Oesterle.

240. Laboratory Research in Copper, Lead, and Zinc Metallurgy. An advanced study of methods of reduction of the metals covered in outline by courses 123, 125, 127. Investigation of processes, selection of equipment, plant design. Economics of smelting. Individual problems. Lab. fee $4.00 per credit. Mr. Barker.

245. Phase Rule. Off-campus, 3 cr. Application of the phase rule to metallurgical reactions. Mr. Oesterle.

246. Thermodynamical Studies. Off-campus, 3 cr. The treatment of recent developments in metallurgical practice from the thermodynamic viewpoint. Mr. Oesterle.

280. Advanced Independent Study. I, II; *cr. See page 331. Staff.

UN-NUMBERED COURSES

Summer Inspection Trips. Inspection trips of six weeks' duration to several of the more important mining or metallurgical centers of the United States and Canada are required for graduation. They should be taken after the junior year.

First Aid Training. A week's training in the first aid methods for miners. Given in conjunction with the United States Bureau of Mines. Required for graduation. Taken in the junior year.

MINE RESCUE TRAINING. A week's training in mine rescue and recovery methods. Given in conjunction with the United States Bureau of Mines. Required in the senior year.

ANNUAL FOUNDRY CONFERENCE. The Department of Mining and Metallurgy cooperates annually with the Wisconsin Chapter of the American Foundrymen's Association in holding a two-day conference. These meetings attract between 400 and 500 foundrymen from Wisconsin and surrounding states.

EXTENSION DIVISION

FRANK O. HOLT, *Dean*

FACULTY

ADOLFSON, LORENTZ HENNING, *B.A.*, Instructor in Political Science
ALLEN, CHESTER, Director of Field Organization
APPLEBY, EFFIE, *R.N.*, Instructor in Visual Instruction
AZPELL, NORMAN JAMES, *B.S.*, Instructor in Spanish and French
BATTIG, LEON, *M.A.*, Instructor in Mathematics
BROWN, FREEMAN HARDING, *B.S.*, Assistant Chief, Bureau of Visual Instruction
BRUMM, LESTER FRANK, *M.S.*, Associate Professor of Accounting
COLBERT, ROY JEFFERSON, *Ph.D.*, Professor of Economics and Sociology
CORP, MRS. GEORGIA M., Assistant, Department of Debating and Public Discussion
CRANE, FRANK DOUGALL, *Ph.D.*, Associate Professor of English
CULVER, JOHN WILLIAM, *Ph.D.*, Instructor in History
DAWE, WILLIAM HOWARD, *M.A.*, Instructor in English
DEAN, CHARLES LYMAN, *B.S.*, Assistant Professor of Mechanical Engineering
DRAKE, LEWIS ETHELBERT, *Ph.D.*, Associate Professor of Psychology
DUFF, JAMES, *M.A.*, Instructor in English
DUNCAN, ROBERT BURNS, Chief of the Bureau of Lectures and Short Courses
EDSALL, BESSIE EVA, *Ph.M.*, Associate Professor of History
ELLIOTT, BENJAMIN GEORGE, *M.S.*, *M.E.*, Professor of Mechanical Engineering
ENGLER, CARL HERMAN, *B.A.*, Special Field Representative
ENGLISH H(ENRY) ROWLAND, *M.A.*, Professor of Business Administration
ERNST, ADOLPHINE BIANCA, *Ph.D.*, Associate Professor of German
EVERS, JOHN KENNETH, *Ph.M.*, Instructor in English
FARRELL, MARY KATHERINE, *B.A.*, *B.M.*, Instructor and Field Representative
FINLEY, ROBERT WILLIAM, *Ph.M.*, Instructor in Geography
FORKNER, LEONE PROCKNOW, Instructor, Field Organization
FOWLER, RUSSELL WINSLOW, *M.S.*, Assistant Professor of Mechanical Engineering
GANGSTAD, IDA MARIE, *B.A.*, Assistant Professor of Library Methods
GOVIN, STEVE CHARLES, *B.S.*, Instructor and Field Representative; Director of Education, State Reformatory, Green Bay
GRAFF, MARSHALL CONANT, *M.A.*, Assistant Professor and Field Representative
HANLEY, WILBUR MATTHEW, *M.A.*, Instructor in Geography
HANSEN, JOHN ELMORE, *Ph.D.*, Chief of the Bureau of Visual Instruction
HEIMONEN, HENRY SAMUEL, *B.A.*, *Ph.M.*, Instructor in Geography
HILLIS, LEONARD FOLSOM, *M.S.*, Assistant Professor of Civil and Structural Engineering
HOLSTEIN, THEODORE STIEHL, *B.A.*, Assistant in Economics
HOLT, FRANK OSCAR, *Ph.M.*, *D.Ped.*, Dean of the Extension Division
HOLT, HARRIETTE GRACE, *M.A.*, Assistant Professor of Mathematics
IMHOFF, LA VERNE JOSEPH, *B.S.*, Assistant Educational Director and Recreation Supervisor, Waupun State Prison
JANSKY, CYRIL METHODIUS, *B.A.*, *B.S.*, Professor of Electrical Engineering
JOHNSON, CARL EMANUEL, *Ph.D.*, Instructor and Field Representative; Director of Education, Waupun State Prison
JONES, JEAN GRADY, *Ph.D.*, Instructor in English
KASTLER, NORMAN MANTONYA, *M.A.*, Instructor in Economics and Sociology
KRASSELT, OTTO LOUIS, *B.A.*, Instructor and Field Representative

KUHN, MANFORD HINSHAW, *M.A.*, Instructor in Sociology
KUNEY, MRS. BERNICE DONNELLY, *M.A.*, Assistant Professor of English
LIESCH, WILLIAM HENRY H., Instructor and Field Representative
LOWE, MYRON JAMES, Instructor and Field Representative
MCCANSE, RALPH ALAN, *M.A.*, Assistant Professor of English
MCCUTCHEON, LEONA ESSIE FREDERICA, *M.A.*, Assistant Professor of Debating and Public Discussion
MCMULLEN, KATHARINE WAY, *M.A.*, Instructor in English and German
MCMURRAY, HOWARD JOHNSTONE, *Ph.D.*, Assistant Professor of Political Science
MARCH, JAMES HERBERT, *M.B.A.*, *C.P.A.*, Assistant Professor of Accounting
MARQUARDT, ELLA, *B.E.*, Instructor, Bureau of Visual Instruction
MARTNER, GRACE CAROLINE, *B.S.*, Assistant, Bureau of Visual Instruction
MAY, ALBERT EMIL, *Ph.D.*, Instructor in Mathematics
MEYER, BENNO WALTER, *B.S.*, Instructor and Field Representative
MILLER, JOHN LESTER, *Ph.M.*, Assistant Professor of Economics and Sociology
MONROE, CHARLES L., *M.A.*, Instructor in History
MONTGOMERY, GREGG REEVE, Assistant, Bureau of Visual Instruction
MORRISON, MRS. IONE MEYERS, Instructor in Debating and Public Discussion
PARKER, JAMES STRONG, *B.A.*, *M.B.A.*, Assistant Professor of Economics
PITMAN, ANN MARIA, *Ph.D.*, Professor of Greek and Latin
POPE, MARGARET ISABEL, *Ph.D.*, Instructor in English
POPE, MINNIE HENRIETTA, *B.A.*, Instructor in Debating and Public Discussion
PULVER, HARRY E., *B.S.*, *C.E.*, Professor of Civil and Structural Engineering
RENTZ, MRS. JOSEPHINE WHEELER, *M.A.*, Instructor in French and Spanish
REYNOLDS, MRS. FLORENCE STEHN, *M.A.*, Instructor in French
ROWLAND, RUTH MARY, Instructor in Debating and Public Discussion
SANDERS, MAMIE AMELIA, *B.A.*, Instructor in Debating and Public Discussion
SCHLATTER, EDWARD BUNKER, *Ph.D.*, Professor of Romance Languages
SCOTT, ALMERE LOUISE, *B.A.*, Director of the Department of Debating and Public Discussion
SCOTT, ELTON MONROE, *B.S.*, *M.A.*, Instructor in Geography
SMITH, MRS. AMY HOYT, *M.A.*, Recorder, Department of Extension Teaching
SORENSEN VOLMER HENRIK, *M.A.*, Instructor and Field Representative
STAMPP, KENNETH MILTON, *Ph.M.*, Instructor in History
STORLIE, HJALMAR, *M.A.*, Instructor in English
TILDEN, CHLOE ELIZABETH, *M.A.*, Instructor in French, German, and Spanish
TRAYSER, MRS. GLADYS, *B.A.*, Assistant in Debating and Public Discussion
TUFTS, KATHRIN MARIE, *M.A.*, Instructor in Spanish
WOOD, HERBERT JOHN, *Ph.D.*, Instructor in History
ZINN, ZEA, *Ph.D.*, Instructor in English

Of the three main functions of a commonwealth university—(1) residence instruction, (2) research, and (3) the dissemination of the useful and assimilable knowledge which has been accumulated through productive scholarship, to all classes of citizens and in forms adapted to their requirements to stimulate intellectual curiosity and inquiry coupled with the desire to know and to understand—the third is fulfilled in an organized way by the Extension Division.

This Division constitutes the extra-mural college of the University, and is therefore one of the seven coordinate major divisions of the University with a dean and a faculty. The work of the Division is divided into three departments as follows: Extension Teaching, Debating and Public Discussion, Public Service.

The object of this University in carrying on extension work is to provide the highest type of intellectual stimulus and continuing education feasible for the citizens of the commonwealth who are unable to attend established educational institutions, and to give every one in the State the opportunity to obtain the highest education possible at the

smallest practicable expense—to bring the University and the home into close relationship.

CORRESPONDENCE STUDY

For the needs of those who are unable to adjust themselves to the formal system of education, special forms of consecutive home-study courses have been developed by the Department of Extension Teaching. This department offers individual instruction adapted to the special needs of students who cannot come into residence study at the University. The instruction given may be undertaken in the leisure hours of each student at his own home.

PLAN AND SCOPE

The University of Wisconsin provides, through the Department of Extension Teaching, non-residence or home-study instruction by correspondence, as follows:

1. Certain regular university studies which may, under approved conditions, be taken for credit toward a degree.

2. Advanced courses designed to help persons—graduates and others—in professional or practical life to keep in touch with the advancement in science and in other fields of knowledge.

3. High-school and preparatory studies for those to whom the conventional institutions are not available or practicable.

4. Elementary and grammar school studies for those who require such instruction for practical or personal purposes.

5. Vocational courses prepared with reference to the needs and requirements of given occupations.

6. Guided study outlines for program material to aid various organizations in their associated or club or group study and discussion work.

GENERAL BENEFITS

Persons who are benefited by correspondence study may be grouped into two main divisions: (a) those who have the taste, ability, and inclination to continue their education, whether general or vocational, (b) wage-earners who cannot leave their employment in order to acquire training directed toward greater proficiency and skill.

The first division may be roughly subdivided into (1) those who wish to keep abreast of the advances in knowledge related to their profession or business, or who wish to continue study purely for purposes of general culture benefits and the enjoyment of the intellectual pleasures that accompany the sense of mastery of knowledge and the attainment of understanding, (2) those who wish to earn units of credit toward a university degree, and (3) those who require preparation for entrance to the University.

The second division includes (1) those whom the necessity of earning a livelihood has taken from school before acquiring a satisfactory elementary education; (2) those who have had the benefit of more or less liberal educational opportunities but have received no training especially adapted to fit them for their chosen vocations; and (3) those who desire to change vocations and prepare themselves for employment more nearly adapted to their tastes and abilities.

All courses offered through correspondence study, whether taken for university credit or not, are on a standardized basis in reference to the amount of work covered. Courses which are satisfactorily completed have, therefore, definite value, and all students who successfully complete such courses will be awarded statements or certificates indicative of the character of the work done.

METHOD

PROCEDURE. As soon as the student has selected his correspondence course or courses he should fill out the application blank and return it, with the required fee, to the office of the Extension Division. The necessary textbooks, outfits, etc., may be purchased through the Extension Division if the student so desires. Ordering texts at the time of registration saves time and facilitates a prompt start. Students are encouraged to register for but one course at a time. Not more than two courses may be taken at one time unless the student can give evidence that he can devote several hours a day to study.

THE INSTRUCTION. Upon receipt of the application and fee, the first group of assignments will be sent with instructions for study, methods of preparation, and directions for returning recitation sheets and reports. Each recitation report will be returned to the student with such corrections, explanations, and suggestions as may be needed. Lists of books, assignments for reading, and all necessary assistance will be furnished throughout the course, so that no student will be left without adequate aid and guidance. Questions on the subject in hand are at all times encouraged.

THE UNIT COURSE. The unit course is divided, where practicable, into forty weekly assignments. Such a course represents at least an amount of work equal to that done in residence at the University in a study of five recitation hours a week for one semester or half year. It is assumed that this work may be done by the average student in forty weeks on a minimum leisure for study of one hour a day, six days in the week. It is, however, the student's privilege to pursue his studies as rapidly as may be consistent with good work and the rules of the University.

THE LESSON ASSIGNMENT. The unit course is divided into assignments. In some courses this may call for but a single report, but in others the assignment may be divided into two or more lessons. In all cases the assignment represents an average week's work, and not an evening's work, as at school.

PERMANENCE. The department endeavors to make its work thorough and permanent, and the various courses have been arranged, wherever that is desirable, in coordination with the regular residence work, the short courses, and the summer session.

EXAMINATIONS. Examinations are optional with the student, but are required where credits or certificates are sought. These examinations must be taken at the University, or under supervised conditions approved by the University.

REGULATIONS. 1. Students may begin correspondence-study courses at any time during the year.

2. For admission to a correspondence-study course no preliminary examination is required. The student is required to fill out an application blank, giving such information as may be helpful to the instructor in adapting the instruction to his personal needs.

3. Students who undertake correspondence-study work for university credit must state this fact in advance and comply with all the requirements of the University.

4. For the benefit of the department it is desired that the applicant state fully the purpose he has in view in taking the work and also in detail such educational advantages, training, or experience as he may have had. The department endeavors to meet the needs of the individual student by advice and suggestion, as well as by formal instruction, but whenever it finds that the course elected is not for the best interest of the student, it reserves the right to reject the application, or to advise a change to another course.

5. The time in which a correspondence-study course is to be completed varies with the length of the course. One year is allowed for a course of twenty-four assignments or less, fifteen months for a course of from twenty-five to thirty-two assignments, and eighteen months for a course of from thirty-three to forty assignments. The fee for reinstatement in a course not completed within the established time limit is two dollars, except in cases where suspension of instruction has been granted for cause, and the time limit extended.

6. Payment of fees in full is expected at the time of registration. In unusual circumstances arrangements can be made for the partial payment of instruction fees of $10 and over. Such arrangements include the filling out of an application form giving certain information, and the payment of a small additional fee. No fee is refunded because a student cannot begin or carry on a course for which he has once registered. If an application for instruction is rejected, the fee is returned.

7. The instruction fee for university credit courses is five dollars per credit for students who are legal residents of the state of Wisconsin. For students not legal residents of the state of Wisconsin, the fee is eight dollars per credit. For courses not involving university credit, corresponding fees prevail. The expense connected with the instruction of each course is listed in the bulletins where these courses are announced. These fees are deliberately put upon the lowest operating basis.

UNIVERSITY CREDIT

1. Persons who have had the required preparation for admission to the University will, upon the satisfactory completion of a correspondence-study course designed for credit, have their grades permanently filed in the Recorder's office until the student has satisfactorily completed one year of study in residence. When all the requirements are satisfied, the correspondence-study records may be transferred to the Registrar's office and applied toward graduation.

2. The maximum credit granted for work done by correspondence study, however, may not exceed one-half the number of credit hours required for graduation.

3. At the completion of each correspondence-study course for university credit, the student shall pass an examination held under the direction of the instructor giving such course, or supervised by some one designated by the University for that purpose.

4. Correspondence study for university credit may not be done by any student while in attendance at any institution of learning, except by written approval from the authorized official of the institution concerned.

5. Students engaged upon correspondence-study courses prior to enrollment for residence work, which have not been completed by the date of campus enrollment, must take a suspension of correspondence-study instruction and must deposit with the Recorder of the Extension Division all advance assignments upon which recitation reports have not been made.

6. In special cases credit may be allowed for correspondence-study courses of preparatory grade to satisfy partial entrance requirements to the University.

CORRESPONDENCE-STUDY COURSES

The number in parentheses, preceding the title of the course, is the number of the equivalent course which is given in residence at the University. For courses which give University credit, there are eight assignments to a credit; the number of credits appears after the title. The in-state fee appears first; the out-of-state fee follows.

Astronomy

17 (17) Survey of astronomy. 3 cr. $15; $24.

Botany

1 (1) General botany. 5 cr. $25; $40.
110 (110) Plant histology. 3 cr. $15; $24.
111 (111) Microscopical examination of drugs and foods. 3 cr. $15; $24.
130 (130) Identification and classification of seed plants. 3-4 cr. $15 or $20; $24 or $32.
131 (131) Dendrology. 2-3 cr. $10 or $15; $16 or $24.
21 Elementary botany. $20; $32.

Business

128 Introductory principles of accounting. $15; $24.
128S Introductory principles of accounting—Abridged. $10; $16.
138 Intermediate accounting I. $10; $16.
139 Intermediate accounting II. $10; $16.
136 Cost accounting I. $10; $16.
140 Cost accounting II. $10; $16.
144 Governmental accounting. $10; $16.
147 Auditing. $10; $16.
148 C.P.A. review problems. $15; $21.
162 Business finance. $15; $24.
169 Investment principles. $7.50; $12.
102 Business correspondence I. $7.50; $12.
103 Business correspondence II. $7.50; $12.
43 (43) Business ethics. 2 cr. $10; $16.
120 The law of contracts and agency. $10; $16.
121 The law of business transactions. $10; $16.
122 The law of business organization. $7.50; $12.
150 Business management. $15; $24.
153 Marketing methods. $10; $16.
154 Principles of advertising. $10; $16.
155 Retail advertising and sales promotion. $10; $16.

Chemistry

1a (1a) General chemistry. 5 cr. $25; $40.
1b (1b) General chemistry. 5 cr. $25; $40.
117 (117) Advanced general chemistry (temporarily withdrawn)

Comparative Literature

67A (67A) Modern drama. 2 cr. $10; $16.
67B (67B) Modern drama. 2 cr. $10; $16.
68A (68A) Modern novel. 2 cr. $10; $16.
68B (68B) Modern novel. 2 cr. $10; $16.
113 Ancient classical drama in English. 2-3 cr. $10 or $15; $16 or $24.
118 Classical mythology in literature. 2 cr. $10; $16.
16 Modern short story. 2 cr. $10; $16.

Drawing

203 Shop sketching. $10.75; $16.75.
203S Freehand industrial sketching. $10.25; $16.25.
204A Shop drawing. $16; $21.
204B Advanced shop drawing. $15; $20.
205 Sheet metal drafting. $8; $10.
206S Elements of graphic statics. $8; $10.
243A Principles of architectural drawing. $10; $16.
243B Advanced architectural drafting. $10; $16.
1 (1) Elements of drawing. 3 cr. $15; $24.
2 (2) Elements of drawing. 3 cr. $15; $24.
3 (3) Descriptive geometry. 3 cr. $15; $24.
4 (7) Freehand lettering. 2 cr. $10; $16.
4A Engineering lettering. $5; $8.
5 Show-card writing. $10; $15.

Economics

1a (1a) General economics. 4 cr. $20; $32.
1b (1b) General economics. 4 cr. $20; $32.
19 (19) Economic history of the United States. 3 cr. $15; $24.
43 (43) Business ethics. 2 cr. $10; $16.
105 (105) Money and banking. 3 cr. $15; $24.
122 (122) Labor problems. 3 cr. $15; $24.
127 (127) Cooperative marketing. 3 cr. $15; $24.
135 (135) Railway transportation. 3 cr. $15; $24.
50 Practical economics. $10; $16.

Education

136 (175) Foundations of method. 2 cr. $10; $16.
180 (180) Principles of educational and vocational guidance. 2 cr. $10; $16.
181 (181) Vocational and educational guidance techniques. 2 cr. $10; $16.
193 (193) Introduction to the supervision of instruction. 2 cr. $10; $16.
20A The teaching of language in the intermediate and grammar grades and in the rural schools. 2 cr. $10; $16.
20B The teaching of literature and reading in the elementary and rural schools. 2 cr. $10; $16.
76A (76A) The teaching of composition. 2 cr. $10; $16.
76B (76B) The teaching of reading and literature. 2 cr. $10; $16.

Engineering—Civil and Structural

401C Blueprint reading (civil and structural). $5; $8.
401M Blueprint reading (mechanical). $5; $8.

404 Civil and structural engineering drawing. $8; $12.
408 Essentials of structural theory. $10; $16.
409 Essentials of structural theory. $10; $16.
410 Roof trusses. $7.50; $12.
411 Plate girders. $7.50; $12.
412A Bridge stresses—uniform loads. $10; $16.
412B Bridge stresses—concentrated loads. $10; $16.
413 Design of railway bridge trusses. $10; $16.
418A Reinforced concrete fundamentals. $15; $24.
418B Reinforced concrete retaining walls and buildings. $15; $24.
418C Reinforced concrete bridges. $15; $24.
421 Steel building design. $10; $16.
425 Deflection of structures and stresses in redundant members of trusses. $5; $8.
430 Plain concrete construction. $5; $8.
472 Materials of construction. $8; $12.
496 Construction estimates and costs. $15; $24.
441A Elementary surveying. $10; $16.
441B Advanced surveying. $10; $16.
442 Highway surveying. $8; $12.
521 Construction of water supply systems. $5; $8.
511 Construction of sewers. $5; $8.
481 Principles of hydraulics. $15; $24.
483 Advanced hydraulics. $5; $8.
445 Railway curves. $10; $16.
501 Highway design and construction. $15; $24.
1 (1) Railway engineering. 2 cr. $10; $16.
2 (2) Hydraulics. 3 cr. $15; $24.
115 (115) Hydraulics, motors and pumps. 1 cr. $5; $8.
102 (102) Highway engineering. 3 cr. $15; $24.
2 (2) Stresses in simple structures. 4 cr. $20; $32.
3 (3) Design of roof trusses and plate girders. 3 cr. $15; $24.
4 (4) Design of railway bridge trusses. 2 cr. $10; $16.
105 (105) Principles of reinforced concrete. 3 cr. $15; $24.
106 (106) Concrete arches. 2 cr. $10; $16.
111 (111) Reinforced concrete buildings. 2 cr. $10; $16.
1T (T.E. 1) Elementary surveying. 1 cr. $5; $8.
2T (T.E. 2) Elementary surveying. 1 cr. $5; $8.
3T (T.E. 3) Land surveying. 1½ cr. $7.50; $12.
104T (T.E. 104) Advanced surveying. 1½ cr. $7.50; $12.
108T (T.E. 108) General surveying. 2 cr. $10; $16.

Engineering—Electrical

311 (6) Theory and operation of direct-current machines. 3 cr. $15; $24.
312 Theory of alternating currents. $12; $20.
313 (7) Alternating-current machinery. 3 cr. $15; $24.
314 Electric lamps and illumination. $12; $20.
315 Practical alternating currents. $12; $20.
316 Central electric stations. $12; $20.
317 (317) Electric power transmission. 3 cr. $15; $24.
318 Telephony—subscriber's apparatus. $6; $10.
319 Commercial electrical measuring instruments. $15; $24.
319A Watthour meters. $8; $12.
322 Storage batteries. $10; $14.
323 Electric central station distribution systems (temporarily withdrawn).
324 Electric wiring. $12; $20.
327 Essentials of electricity. $12; $15.
328 Practical radio. $10; $16.
330 Electrical engineering mathematics. $20; $30.
340 (1) Fundamentals of electrical engineering. 4 cr. $20; $32.
341 (2) Principles of direct-current machines. 4 cr. $20; $32.
343 (3) Principles of alternating currents. 4 cr. $20; $32.
344 (4) Principles of alternating current machinery. 4 cr. $20; $32.
346 Electric circuits and transient electric phenomena. 2 cr. $10; $16.

Engineering—Mechanical

75 The operation and application of the slide rule. $3.50; $5.
201A Shop arithmetic. $11; $21.
201B Advanced shop mathematics. $11; $21.
206 Elements of mechanics. $15; $24.
207 Strength of materials. $15; $24.
208 Mechanism. $10; $15.
1 (1) Machine design (mechanism). 4 cr. $20; $32.
209 Elementary machine design. $15; $20.
214 Elementary steam engineering. $10; $20.
215 Heat. $10; $16.
230A (S. and G. 1) Heat power engineering. 4 cr. $20; $32.
230B (S. and G. 2) Heat power engineering. 4 cr. $20; $32.
216 Steam boilers. $15; $24.
217 Steam engines. $15; $20.
218 Aeronautics. $15; $24.
218C Meteorology and air navigation. $15; $20.
219D The gasoline automobile.
Part 1—The automobile engine. $6; $12.
Part 2—Automobile electrical equipment. $5; $10.
Part 3—The automobile chassis. $5; $10.
220 Diesel engines. $13; $18.
222 Refrigeration. 3 cr. $15; $24.
223 Heating and ventilating. 3 cr. $15; $24.
224 Air conditioning. $15; $24.
223HS Elementary principles of air conditioning. $7.50; $15.

235 Elementary plumbing. $16; $20.
241 Carpenters' and builders' arithmetic. $10; $15.
242 The properties and uses of wood. $10; $15.
242A Kiln drying of lumber. $10; $15.
272 Cupola practice. $5; $10.
274 Foundry metallurgy. $10; $15.

English and Comparative Literature

A A course preparatory for freshman English. $8; $10.
1A (1A) English composition. 3 cr. $15; $24.
1B (1B) English composition. 3 cr. $15; $24.
2A (2A) Intermediate composition. 2-3 cr. $10 or $15; $16 or $24.
2B (2B) Intermediate composition. 2-3 cr. $10 or $15; $16 or $24.
5A (5A) Advanced composition. 2-3 cr. $10 or $15; $16 or $24.
5B (5B) Advanced composition. 2-3 cr. $10 or $15; $16 or $24.
7A Narrative writing. 2 cr. $10; $16.
7B Narrative writing. 2 cr. $10; $16.
88 Composition of specialized exposition. 2 cr. $10; $16.
88A Composition of specialized exposition. $5; $8.
99 English versification. 2 cr. $10; $16.
30A (30A) General survey of English literature. 3 cr. $15; $24.
30B (30B) General survey of English literature. 3 cr. $15; $24.
33A (33A) Introduction to English literature. 2-3 cr. $10 or $15; $16 or $24.
33B (33B) Introduction to English literature. 2-3 cr. $10 or $15; $16 or $24.
34 The romantic movement. 3 cr. $15; $24.
37A (37A) Shakespeare. 3 cr. $15; $24.
37B (37B) Shakespeare. 3 cr. $15; $24.
39 (139) The English novel in the nineteenth century. 3 cr. $15; $24.
40A General survey of American literature. 2 cr. $10; $16.
40B General survey of American literature. 2 cr. $10; $16.
141 The poetry of Tennyson. 2 cr. $10; $16.
145 The poetry of Browning. 2 cr. $10; $16.
9 Elementary English. $12; $24.
10 English grammar. $12; $15.
11 Better English. $24; $30.
12 Practical English review. $5; $10.
13 First year high-school English. $25; $30.
14 Second year high-school English. $25; $30.
15 Third year high-school English. $25; $30.
16 Fourth year high-school English. $25; $30.
17 Composition for seniors. $8; $10.
67A (67A) Modern drama. (See comparative literature.)
67B (67B) Modern drama. (See comparative literature.)
68A (68A) Modern novel. (See comparative literature.)
H.E. 94—Decorative textiles ---------- 3
H.E. 20—Costume selection ---------- 2
68B (68B) Modern novel. (See comparative literature.)
113 Ancient classical drama in English. (See comparative literature.)
118 Classical mythology in literature. (See comparative literature.)
16 Modern short story. (See comparative literature.)

French

1a (1a) Elementary French. 4 cr. $20; $32.
1b (1b) Elementary French. 4 cr. $20; $32.
10a (10a) Intermediate French. 3 cr. $15; $24
10b (10b) Intermediate French. 3 cr. $15; $24.
15 (15) Elementary composition. 2 cr. $10; $16.
25 (25) Intermediate composition. 2 cr. $10; $16.
124 (124) Advanced composition. 2 cr. $10; $16.
21 (Special) Advanced reading. 2-3 cr. $10 or $15; $16 or $24.
21a (21a) Elementary survey. 3 cr. $15; $24.
21b (21b) Elementary survey. 3 cr. $15; $24.
123 (123) Modern French dramatists. 2-3-4 cr. $10, $15, or $20; $16, $24, or $32.
136 (136) Modern French novelists. 2-3-4 cr. $10, $15, or $20; $16, $24, or $32.
131 (131) General survey of French literature. 3 cr. $15; $24.

General Science

1a General science. $10; $15.
1b General science. $10; $15.

Geology and Geography

1 (5 for 3 cr.; 1 for 5 cr.) Physiography. 3-5 cr. $15 or $25; $24 or $40.
2 (2 in pt.; 1 in pt.) General geology. 3 cr. $15; $24.
3 (3) Economic geography. 3 cr. $15; $24.
101 (101) Geography of Europe. 3 cr. $15; $24.
104 (104) Geography of Wisconsin (under revision).

German

1HS First year high-school German. $20; $32.
2HS Second year high-school German. $20; $32.
3HS Third year high-school German. $20; $32.
4HS Fourth year high-school German. $20; $32.
1a (1a) First semester German. 4 cr. $20; $32.
1b (1b) Second semester German. 4 cr. $20; $32.
2 Elementary German review. $10; $16.
2a (2a) Third semester German. 3-4 cr. $15 or $20; $24 or $32.
2b (2b) Fourth semester German. 3-4 cr. $15 or $20; $24 or $32.
16 Prose reading for graduates. $10, $15, or $20; $16, $24, or $32.
20 (20) Classical and modern writers. 2-3 cr. $10 or $15; $16 or $24.
22 (22) Readings in prose and fiction of the 19th and 20th centuries. 2-3-4 cr. $10, $15, or $20; $16, $24, or $32.
23 (23) Readings in the drama of the 19th and

20th centuries. 2-3-4 cr. $10, $15, or $20; $16, $24, or $32.
25 (25) Intermediate composition and conversation. 2-3-4 cr. $10, $15, or $20; $16, $24, or $32.
28 (28) Scientific German (for students of chemistry). 2-3-4 cr. $10, $15, or $20; $16, $24, or $32.
29 (29) Scientific German (for students of medicine). 2-3-4 cr. $10, $15, or $20; $16, $24, or $32.
80 (80) Supervised individual reading. 2-3 cr. $10 or $15; $16 or $24.
82 The teaching of German in elementary schools. $5; $8.
83 (83) The teaching of German. 2-4 cr. $10 or $20; $16 or $32.
102 (102) The classical period. 3-4 cr. $15 or $20; $24 or $32.
104 (104) Contemporary literature. 3 cr. $15; $24.
130 (130) Goethe's Faust. 3-6 cr. $15 or $30; $24 or $48.
131 (131) Survey of German literature.
Part A—3 cr. $15; $24.
Part B—3 cr. $15; $24.
150 (150) History of the German language. 2 cr. $10; $16.
400 Beginning German. $5; $8.
401 Intermediate German. $5; $8.
402 Advanced German. $5; $8.

Greek

1 Elementary Greek. 4 cr. $20; $25.
1A Elementary Greek—Pharr's Homeric Greek. 4 cr. $20; $25.
1S Elementary Greek. 2 cr. $10; $12.50.
2 Xenophon's Anabasis. 3 cr. $15; $20.
3 Homer: the Iliad. 3 cr. $15; $20.
5 Elementary compostion. 2 cr. $10; $16.
6 Reading course in the Iliad. 2-3 cr. $10 or $15; $16 or $24.
7 Reading course in Herodotus. 3 cr. $15; $20.
8 Reading course in Greek tragedy. 2 cr. $10; $16.
101 Advanced prose composition. 2-4 cr. $10 or $20; $16 or $32.
113 Ancient classical drama in English. 2-3 cr. $10 or $15; $16 or $24.
118 Classical mythology in literature. 2 cr. $10; $16.

Health

6 Prevention of disease and home care of the sick. $4; $8.

History

51 United States history. $10; $15.
52 United States history. $10; $15.
60 World history. $10; $15.
61 World history. $10; $15.
87 Modern European history, 1450-1870. $10; $15.
88 Modern European history, 1870-1920. $10; $15.
1a (1a) Medieval history. 2-3 cr. $10 or $15; $16 or $24.
1b (1b) Medieval history. 2-3 cr. $10 or $15; $16 or $24.
2a (2a) Modern European history. 2-3 cr. $10 or $15; $16 or $24.
2b (2b) Modern European history. 2-3 cr. $10 or $15; $16 or $24.
4a (4a) History of the United States, 1760-1865. 3 cr. $15; $24.
4b (4b) History of the United States, 1865-1930. 3 cr. $15; $24.
5a (5a) English history. 2-3 cr. $10 or $15; $16 or $24.
5b (5b) English history. 2-3 cr. $10 or $15; $16 or $24.
10a (10a) Ancient history. 2-3 cr. $10 or $15; $16 or $24.
10b (10b) Ancient history. 2-3 cr. $10 or $15; $16 or $24.
84 (84) The teaching of history and the social sciences. 2 cr. $10; $16.
139a Europe from 1815 to 1870. 2-3 cr. $10 or $15; $16 or $24.
139b Europe since 1870. 2-3 cr. $10 or $15; $16 or $24.

Home Economics

1 Food problems in home making. $5; $8.
6 Prevention of disease and home care of the sick. $4; $8.
10 (10) Clothing economics. 2 cr. $10; $16.
15 Home furnishing and decorating. $5; $8.
25 The school lunch. $5; $8.
110 (110) Household administration. 2 cr. $10; $16.

Italian

1a (1a) Elementary Italian. 4 cr. $20; $32.
1b (1b) Elementary Italian. 4 cr. $20; $32.
10a (10a) Intermediate Italian. 3 cr. $15; $24.

Landscape Design

51 Landscaping home grounds. $10; $20.

Latin

1R Elementary Latin. 4 cr. $20; $25.
2 Caesar. 4 cr. $20; $25.
2A Caesar. 2 cr. $10; $12.50.
2D Caesar for students of medicine and pharmacy. 4 cr. $20; $25.
3 Cicero: orations. 4 cr. $20; $25.
4 Virgil: Aeneid. 4 cr. $20; $25.
4A Metre of the Aeneid. $2.50; $5.
5 Sallust: the conspiracy of Catiline. 2 cr. $10; $16.
9 Elementary composition. 5 cr. $25; $30.
101 Advanced composition. 2-4 cr. $10 or $20; $16 or $32.
7 Livy, books I and XXI. 2-3 cr. $10 or $15; $16 or $24.

10 Cicero: De Senectute. 2 cr. $10; $16.
12 Terence: Andria and Phormio. 2 cr. $10; $16.
14 Horace: Odes. 3 cr. $15; $24.
15 Horace: Satires and Epistles. 3 cr.
16 Catullus. 2 cr. $10; $16.
17 Ovid: Metamorphoses. 2 cr. $10; $16.
18 Propertius: Elegies. 1 cr. $5; $8.
19 Tibullus: Elegies. 1 cr. $5; $8.
20 Cicero: Letters and orations. 3 cr. $15; $24.
113 Ancient classical drama in English. 2-3 cr. $10 or $15; $16 or $24.
118 Classical mythology in literature. 2 cr. $10; $16.
130 Medieval Latin poetry. 2 cr. $10; $16.

Library Methods

1 Library methods for teacher librarians. $16; $32.
2 Cataloging. $10; $16.
3 Elementary school library methods. $10; $16.
4 Library practice for apprentices. $16; $32.
5 The library as an adult education agency. $5; $8.
6 Government publications and pamphlet collections for small libraries. $5; $8.

Mathematics

1 Elementary algebra. Part A—$10; $15. Part B—$10; $15.
10 Plane geometry. Part A—$10; $15. Part B—$10; $15.
11 Social business arithmetic. $10; $15.
12A Solid geometry. $10; $15.
12B Plane trigonometry. $10; $15.
50 Advanced high-school algebra. $10; $15.
8 (8S) Solid geometry. 3 cr. $15; $20.
2 Plane trigonometry. 4 cr. $20; $32.
2a (2) Trigonometry and analytic geometry. 4 cr. $20; $32.
1 (1) College algebra. 4 cr. $20; $32.
3a (3) Plane analytic geometry. 3 cr. $15; $24.
3b (4, in part) Analytic geometry of space. 1 cr. $5; $8.
5a Differential calculus. 3 cr. $15; $24.
5b Integral calculus. 3 cr. $15; $24.
6 (6) Determinants and analytic geometry of three dimensions. 3 cr. $15; $24.
71 (71) Agricultural mathematics. 4 cr. $20; $32.
7 (7) Mathematical theory of investment. 4 cr. $20; $32.
24 (24) Theory of life insurance. 3 cr. $15; $24.
24A Mathematics of life insurance. 2 cr. $10; $16.
25 The theory of finite differences. 1 cr. $5; $8.
125 (101, in part) Theory of equations. 3 cr. $15; $24.
115 (115) Projective geometry. 3 cr. $15; $24.
111 (102, in part) Advanced calculus. 3 cr. $15; $24.
112 (112) Differential equations. 3 cr. $15; $24.
112a (112, in part) Differential equations. 3 cr. $15; $24.
112b (112, in part) Partial differential equations. 1 cr. $5; $8.
113 (104, in part) Theoretical mechanics, 3 cr. $15; $24.
114 (103, in part) Modern analytic geometry. 3 cr. $15; $24.
117 (117) Vector analysis. 1 cr. $5; $8.
118 (118) The theory of probabilities and methods of least squares. 3 cr. $15; $24.
263 (263) Higher algebra. 3 cr. $15; $24.
91 (91) College geometry. 2 cr. $10; $16.
93 (93, in part) The teaching of secondary mathematics. 2 cr. $10; $16.
20 (211 [2]) Introduction to statistics. 2 cr. $10; $16.
50 Algebra for engineers. $10; $15.
51 (51) Elementary mathematical anlysis. 5 cr. $25; $40.
52 (52) Elementary mathematical analysis. 5 cr. $25; $40.
53 (53) Elementary mathematical analysis. 5 cr. $25; $40.
54 (54) Differential and integral calculus. 4 cr. $20; $32.
55 (55) Calculus. 4 cr. $20; $32.
56 (55, in part) Integral calculus. 4 cr. $20; $32.
31 Practical arithmetic. $4; $8.
32 Practical algebra. $6; $10.
33 Mensuration and practical geometry. $4; $8.
34 Practical trigonometry. $6; $10.
35 Practical calculus. $5; $10.
41 Agricultural arithmetic. $5; $10.
41A Farm accounts. $2; $3.
45 Commercial arithmetic. $5; $10.
62 Elementary algebra review. $5; $10.

Mechanics

1 (1) Statics. 3 cr. $15; $24.
2 (2) Dynamics. 2 cr. $10; $16.
3 (3) Strength of materials. 5 cr. $25; $40.

Music

1a Harmony. 3 cr. $15; $24.
1b Harmony. 3 cr. $15; $24.
21a Elementary counterpoint. 2 cr. $10; $16.
21b Elementary counterpoint. 2 cr. $10; $16.
20a (20a) History of music. 2 cr. $10; $16.
20b (20b) History of music. 2 cr. $10; $16.

Pharmacy

1A (1A) Pharmaceutical technique. 3 cr. $15; $24.
1B (1B) Pharmaceutical technique. 3 cr. $15; $24.
20A (20A) Elementary prescription practice. 2 cr. $10; $16.
20B (20B) Prescription practice, solid preparations. 2 cr. $10; $16.

121A (121A) Prescription practice, Advanced. 1 cr. $5; $8.
121B (121B) Prescription practice, Advanced. 1 cr. $5; $8.
128 (128) Pharmaceutical technology. 2 cr. $10; $16.
3 Pharmaceutical arithmetic. $10; $16.
6 Pharmaceutical Latin. $10; $16.
122 Vitamins. $10; $16.
123 Biologicals. $10; $16.

Philosophy

41 (41) Introductory ethics. 3 cr. $15; $24.

Physics

1 Elementary physics. $20; $30.
87 Physics review. $6; $12.
1aE (1, in part) University physics. 3 cr. $15; $24.
1bE (1, in part) University physics. 3 cr. $15; $24.
51A (51) Engineering physics. 3 cr. $15; $24.
52E (53) Engineering physics. 3 cr. $15; $24.
117 (117) Physical optics. 2 cr. $10; $16.
60 Modern physics. 4 cr. $20; $32.
91E (91) Sound. 1 cr. $5; $8.

Political Science

7 (7) American government and politics, national. 3 cr. $15; $24.
13 (13) Municipal government. 3 cr. $15; $24.
25 (25) Survey of world politics. 3 cr. $15; $24.
123 (123) American diplomacy. 2 cr. $10; $16.
127 (127) Comparative government: parliamentary democracy. 3 cr. $15; $24.
128 (128) Comparative government: contemporary dictatorships. 3 cr. $15; $24.
134 County and township government in the United States. 2 cr. $10; $16.

Psychology

1 (1) General psychology. 3 cr. $15; $24.
10 Human behavior. $7.50; $12.
50 (50) Applied psychology. 2 cr. $10; $16.

Publicity

1 Writing publicity for clubs. $5; $8.

Scandinavian

1A (1A) First semester Norwegian. 4 cr. $20; $32.

Sociology

1 (1) Introductory sociology. 3 cr. $15; $24.
2 (2) Social problems. 3 cr. $15; $24.
25 (25) Rural life. 3 cr. $15; $24.
141 (141) Poverty and dependency. 3 cr. $15; $24.
161 (161) Criminology and penology. 3 cr. $15; $24.

Spanish

1a (1a) Elementary Spanish. 4 cr. $20; $32.
1b (1b) Elementary Spanish. 4 cr. $20; $32.
10a (10a) Intermediate Spanish. 3 cr. $15; $24.
10b (10b) Intermediate Spanish. 3 cr. $15; $24.
21 special (21, in part) Advanced Spanish reading. 2 cr. $10; $16.
21A (21A) Elementary survey of Spanish literature. 3 cr. $15; $24.
21B (21B) Elementary survey of Spanish literature. 3 cr. $15; $24.
25 (25) Intermediate composition. 2 cr. $10; $16.
104a (104a) Don Quixote. 3 cr. $15; $24.
104b (104b) Don Quixote. 3 cr. $15; $24.

Speech

1 Elementary speech writing. $5; $8.
30 The debate. $5; $8.
198 (198) The teaching of speech. 2 cr. $10; $16.

Statistics

20 (211 [2]) Introduction to statistics. 2 cr. $10; $16.

Teachers' Review Courses

62 Elementary algebra review. $5; $10.
87 Physics. $6; $12.

EXTENSION CLASSES

Extension classes are organized in various communities of the State whenever it is feasible to do so, and wherever a sufficient number of persons having a common interest in a given subject request such work. Many of the courses given by class instruction involve university credit for properly qualified persons. Other courses are organized and given independent of all curricular requirements for degrees, but definitely planned for vocational or avocational purposes.

MILWAUKEE CENTER

CHARLES MALTADOR PURIN, *Ph.D.*, Professor of German, Director
GEORGE AMBROSE PARKINSON, *Ph.D.*, Assistant Director, in charge of evening classes.

FACULTY

AVEY, HARRY THOMPSON, *M.E.*, Associate Professor of Mechanical Engineering
BABCOCK, MARY RUTH, *M.A.*, Assistant Professor of English
BAIER, JOSEPH GEORGE, JR., *Ph.D.*, Associate Professor of Zoology
BAKER, LYNN ERLAND, *Ph.D.*, Instructor in Psychology
BALDWIN, LEO STARR, *B.A., B.S.*, Assistant Professor of Drawing
BARDELL, ROSS HARVEY, *Ph.D.*, Assistant Professor of Mathematics
BARTSCH, ALFRED FRANK, *Ph.D.*, Instructor in Botany
BAUER, THEODORE WILLIAM, *Ph.D.*, Instructor in History
BELL, EARL ROSS, *M.A.*, Instructor in Physics
BOZAK, IRENE MARY, *B.A.*, Assistant Recorder
BROOKS, DUDLEY COOKINGHAM, *M.A.*, Instructor in English
CREAMER, JOHN JOSEPH, *B.A., LL.B.*, Associate Professor of English
DEPTULA, SZYMON STANISLAW, *M.A.*, Instructor in Polish and English
DOERING, HELMUTH REINHOLD, *B.A., M.B.A.*, Assistant Professor of Business Administration
ERNSTER, ARTHUR, Instructor in Chemistry
FULLER, WILLIAM JOHN, *B.A.*, Professor of Civil and Structural Engineering
GRANT, HIRAM ELVIN, *B.S.*, Assistant Professor of Mechanical Drawing
HAYES, MERLIN LEWIS, *Ph.D.*, Assistant Professor of Botany and Zoology
HOLMES, MRS. ELISABETH KATZ, *M.A.*, Assistant Professor of English
HOLST, EDWARD DEMIN, *M.A.*, Instructor in English
HURSLEY, FRANK MCCALL, *M.A.*, Assistant Professor of English
JACKSON, RALPH V., *M.A.*, Instructor in French and Italian
JAECK, ELSA LAURA, *B.A.*, Librarian
KLECZKA, FLORENCE MARY, *B.A., B.L.S.*, Library Assistant
KUNZE, HARRY LEWIS, *M.A., J.D., C.P.A.*, Assistant Professor of Accounting
LANGWILL, MRS. IRENE ETTA, *B.A.*, Recorder
LAWRENCE, LEE EDWARD, *Ph.D.*, Assistant Professor of History and Political Science
LAYDE, DURWARD CHARLES, *Ph.D.*, Instructor in Chemistry
MARTIN, MILES J., *Ph.D.*, Professor of Physics
MILLINGTON, PAUL EMANUEL, *Ph.D.*, Associate Professor of Chemistry
MITCHELL, WILBUR L., *M.A.*, Instructor in Mathematics
MYERS, RAYMOND HARLAND, *M.A.*, Associate Professor of Speech
NORDHAUS, EDWARD ALFRED, *Ph.D.*, Instructor in Mathematics
PARKINSON, GEORGE AMBROSE, *Ph.D.*, Associate Professor of Mathematics and Assistant Director in charge of Evening Classes
PERSON, PHILIP HILMORE, *Ph.D.*, Associate Professor of Sociology
PURIN, CHARLES MALTADOR, *Ph.D.*, Director, Milwaukee Extension Center; Professor of German
REINDERS, VICTOR A., *Ph.D.*, Assistant Professor of Chemistry
REINERT, RUTH GERTRUDE, *Ph.D.*, Instructor in History
ROTH, WILLIAM EDWARD, *Ph.D.*, Associate Professor of Mathematics
ROUSE, THEODORE ALTON, *Ph.D.*, Assistant Professor of Physics
SAPP, RALPH, Assistant in Chemistry
SCHNAITTER, M(ARION) REXFORD, *LL.B., M.A.*, Associate Professor of Economics

SHELDON, DAVID CLARK, *Ph.D.*, Instructor in English
STEINFORT, META MARY, *M.A.*, Associate Professor of Spanish
TORINUS, GRACIA ELIZABETH, *M.A.*, Assistant Professor of English
TOWN, GEORGE GALLOWAY, *Ph.D.*, Professor of Chemistry
TRASKELL, CHARLES PETER, *B.S.*, Instructor in Physical Education
VASS, JOHN ISAAC, *Ph.D.*, Instructor in Mathematics
VOIGT, MRS. FRIEDA, *M.A.*, Assistant Professor of German
WALKER, RUTH IRENE, *Ph.D.*, Associate Professor of Botany and Zoology
WEIDMAN, ROBERT HULBURT, *Ph.D.*, Assistant Professor of German and French
WELLE, HERBERT WILLIAM, *B.S.*, Associate Professor of Topographic Engineering
WILDA, EUGENE FRANKLIN, *B.S.*, Instructor in Chemistry
WOLF, LOUISE ADELAIDE, *Ph.D.*, Assistant Professor of Mathematics
YOUNG, CHARLES EDMUND, *Ph.D.*, Professor of Romance Languages

The work of the Extension Division in Milwaukee is carried on through day classes in which students take a full-time program of work, and evening classes in which they carry a part-time schedule of studies in the evening or late afternoon.

The fees in both day and evening classes are computed on the basis of the number of credit hours carried, the rate being $5.00 per credit hour. This does not cover the cost of textbooks or laboratory charges.

DAY CLASSES. The day classes offer programs of the work of the freshman and sophomore years in Chemistry, Engineering, and Letters and Science, including pre-commerce, pre-journalism, pre-law, pre-medicine, pre-nursing, and pre-education.

With respect to their content, as well as with respect to general approach, the various courses offered in day classes are parallel to the courses listed under the same designations in the University at Madison. They have been approved by the respective residence departments at Madison and carry full credit toward a university degree. The requirements for admission in the day classes are in all respects the same as in the University at Madison.

EVENING CLASSES. The courses offered in evening classes may be classified under four heads: (1) University Credit Courses; (2) Business Certificate Courses; (3) Engineering Certificate Courses; (4) Liberal Education Certificate Courses.

The University Credit Courses are open to those who wish to obtain credits toward a degree during their spare time. To accumulate such credits students must have satisfied the entrance requirements of the University and must have the prerequisites for the courses taken.

With a few exceptions, the Business and Engineering Certificate Courses do not offer credits leading to a degree. On the completion of a three-year evening course of study, a certificate is given by the Extension Division. Certificates are offered in the following fields of commerce and engineering: General Business Accounting, Marketing and Advertising, Finance and Credit, Industrial Management, Secretarial Work, Business Administration, Building Design, Machine Design, Structural Design Heating, Ventilation, Refrigeration, and Industrial Technology.

The underlying purpose of the series of courses in Liberal Education is to give an opportunity for adults to acquire an education which will create a feeling for those things that make life richer and more significant. A certificate is given on the satisfactory completion of twelve courses from this group.

DEPARTMENT OF DEBATING AND PUBLIC DISCUSSION

ALMERE LOUISE SCOTT, B.A., DIRECTOR

For the assistance and instruction of citizens who are interested in important social, educational, and political problems, the Department of Debating and Public Discussion fosters forum activities for deliberative study and discussion.

The department issues suggestive and guiding bulletins, collects and maintains a loan library available through parcel post to residents of the State, and keeps in close touch through correspondence and personal interviews with community centers, civic clubs, farmers' clubs, women's and business men's organizations, parent-teacher associations, school and library boards, and literary societies of educational institutions.

STUDY AIDS

GUIDED STUDIES. To meet a demand for group direction in serious study, the department offers Guided Studies. A registration fee of four dollars in Wisconsin and five dollars outside the State covers the cost of four sets of any of the studies. This fee also covers the privilege of guidance and directed study. For the accommodation of groups that wish to supply personal copies to members, additional sets are supplied at the cost of production. Single copies of the Guided Studies are available for independent study at forty and forty-five cents within the state of Wisconsin, with a 15% discount on the purchase of five or more copies, and at fifty and sixty cents outside the State, with a 10% discount on purchases of five or more copies. The Guided Studies are prefaced with an asterisk (*) in the following list of study programs.

STUDY PROGRAMS. Topical programs are available on Africa; Africa in International Affairs; *Age of Knighthood; Alaska; American Artists; *American Diplomacy; *American Life as Represented in Native One-Act Plays; Ancient Greek Civilization; Architecture; Banking; Better Speech; *Browning; Chinaware and Old Glassware; Choral Speaking; Citizen's Committee on Public Welfare in Wisconsin: Introductory Study, Child Welfare, Dependency and Public Assistance, Delinquency and Corrections, Health and Disability, County and State Organization, Finance and Personnel; Civil Service in Modern Government; *Contemporary Novel, American Novelists; *Contemporary Novel, English Novelists; County and Town Government; Educating the Consumer: Part I, Consumers in the Modern Market, Part II, Consumers' Guide to Commodity Buying—Sect. I, Income Division, Food, Clothing, Sect. II, Household Textiles, Equipment, Furniture, Household Furnishings, Beauty Aids, Toilet Articles, Drugs; From Village to City; Home Crafts; Landscape: The Home Landscape, Building the Home Landscape, Public Problems in Landscape Design—Part I, Roads, Highways, Roadside Development, Part II, Parks, Play Areas, Parkways, Part III, Government Forests, Nature Sanctuaries, Wild Life Areas, Small Grounds of Civic Importance, School Grounds, Cemeteries; Map of Europe; *Modern Drama; Modern Italy; Modern Japan; Music in Twentieth Century America; *Novel of the Nineteenth Century; Painting Beginning with the Renaissance; Pan-American Relations; Parent Education; Philosophy; Political Parties and Practical Politics; Pottery and Chinaware; Psychology; Recent History of the United States; Representative Americans; Republics of South America; Scandinavia; *Shakespeare; Short Story; The Under-privileged Child; United States and World Politics; United States Possessions and Cuba; Wisconsin Songs That Live; Wisconsin State Government In-Service Training Apprenticeship Program; American Constitution: Selected list of references with program suggestions, free in Wisconsin, ten cents outside the State; The Anti-Federalist, Excerpts from Papers of Leading Opponents of the Federal Constitution.

These programs may be purchased inside Wisconsin at from twenty-five to fifty cents per copy, with a 15% discount on the purchase of five or more copies; outside Wisconsin at from twenty-five to sixty-five cents, with a discount of 10% on five or more copies. In cooperation with public libraries and state library commissions, the department aims to make the necessary reference material available to study groups and to individuals.

PUBLICATIONS

Several compact and useful bulletins have been issued as aids to debaters including: Debating Societies—Organization and Procedure; Principles of Effective Debating;

How to Judge a Debate; and Triangular Debating Leagues. As special aids to organizations, bulletins on farmers' clubs, civic clubs, and parent-teacher associations have been published. The Triangular Discussion League bulletin suggests a plan to encourage the study and the intelligent discussion of great current problems not suited to a two-sided contest, but adapted rather to a general discussion which brings out the many sides and salient facts.

FORMULATED QUESTIONS. Bulletins are available which formulate subjects for debate, give brief historical facts and arguments, and conclude with a selected, classified bibliography. These bulletins serve as an impetus to careful study, and in such setting are helpful and time-saving. Such questions as the following have been thus presented: Chain Stores; Taxation; Installment Selling; Closed vs. Open Shop; Commission Plan of City Government; Initiative and Referendum; Municipal Unemployment Insurance; Radio Control; Federal Aid for Education; Socialized Medicine; Government Ownership of Electric Utilities; Unicameral Legislatures; America's Foreign Policy; British American Alliance; Government Ownership of Railroads. The Department will supply any of these bulletins upon receipt of the list price.

MIMEOGRAPHED MATERIAL. Cuttings for public speaking practice and study in schools and for special programs, and mimeographed articles otherwise not easily available, on such subjects as Chain Stores, Installment Selling, Compulsory Automobile Insurance, the Direct Primary, Unemployment Insurance, Radio Control, Taxation, Unicameral Legislatures, America's Foreign Policy, and Government Ownership of Railroads are available. The department will send lists to those interested.

LOAN MATERIAL

The loan package libraries available to residents of Wisconsin include selected newspaper and periodical clippings, office-bound sections of periodicals, government documents, publications of organizations, copies of addresses, reprints, typewritten excerpts, books, in fact all forms of carefully selected available materials dealing in a fair and balanced manner with the different phases of worthwhile subjects. In order that material may be selected judiciously, it is essential that the request for a package library state definitely the purpose for which the information is desired, and the latest date upon which it would prove of value. The same material may not be equally adapted to or usable by a rural school pupil and a member of a woman's club. Package libraries should be selectively adapted to the user.

The department aims to cooperate in every possible way with local librarians. Requests from communities which have public libraries should state what is available locally. This will avoid unnecessary duplication and expense.

DEPARTMENT OF PUBLIC SERVICE

PURPOSE. The Department of Public Service is composed of bureaus which deal with the informal or non-consecutive type of service as distinguished from the more formal and systematic type of instruction. These bureaus are concerned with questions and problems of general interest and public welfare.

The department serves as a clearing house through which all reasonable inquiries of the people of the State on matters of collective import may receive consideration.

ORGANIZATION. The Department of Public Service operates through the following bureaus, each in charge of a specialist: Bureau of Lectures and Short Courses, Bureau of Visual Instruction, Bureau of Economics and Sociology, and Bureau of Business Information.

METHOD. The department seeks to serve the individual inquirer, the group, and the community in establishing contact with specific lines of information, through the accumulation of data and the presentation of such data in non-technical form from such diverse sources as the reports of government bureaus, commissions, and experimental

stations; the proceedings of scientific societies; publications of an economic, a social, a political, or an ethical character.

BUREAU OF LECTURES AND SHORT COURSES

ROBERT B. DUNCAN, CHIEF

PURPOSE. For instruction and platform inspiration in communities where the lyceum need exists, the Bureau of Lectures and Short Courses organizes and supplies local programs.

SCOPE OF SERVICE. The University offers through this department: (1) single lectures or series of lectures; (2) lecture, concert, recital, or reading programs, or a miscellaneous combination of these. Such programs are offered with the definite purpose of developing better taste and higher standards with reference to public entertainments, and an appreciation of art, music, and literature by presenting examples.

LECTURES. The field covered by the lecture course is a wide one, including topics in education, history, geography and travel, economics, political science, sociology, business administration, the history and literature of ancient and modern peoples, including Greek and Roman, Scandinavian, German, Semitic, French, and English life and letters, the physical sciences, engineering branches, forestry, and physical training. Lists of speakers and detailed information will be sent upon request.

TEACHERS' CONVENTIONS AND INSTITUTES. The Extension Division will provide university speakers for these meetings as far as the regular work of the University will permit.

COMMENCEMENT ADDRESSES. This department arranges for commencement addresses to be delivered by members of the university staff and others available in this service. The charges for the speakers desired will be arranged in each case through the Extension Division.

SHORT COURSES AND INSTITUTES. A short course or institute is an intensive training program or course ranging in duration from one day to two weeks. The program consists of a specialized series of lectures, discussions, and demonstrations directed by leading speakers and teachers secured from the faculty of the University and from the State and country at large.

SPECIAL OCCASION LECTURES. This department furnishes speakers for special occasions, such as memorial and dedication exercises, and convocations in schools; also for commercial organizations and civic and women's clubs.

EXPENSES. The local expenses include hall rent and advertising in the local papers, and the lantern and operator, where the lecture is illustrated. Full information concerning lecturers' fees will be supplied on application.

BUREAU OF VISUAL INSTRUCTION

JOHN ELMORE HANSEN, *Ph.D.*, CHIEF

The Extension Division has for loan purposes, motion picture films on nearly all educational subjects. These materials are available to individuals and institutions within the State for educatonal purposes. This service is organized in the Bureau of Visual Instruction, which is making a thorough and systematic study of materials that may be used in illustrative teaching, or in instruction through the medium of the eye. Studies to determine the most effective methods in the use of these materials are being carried on constantly. The Bureau places such materials within easy and constant reach of all schools and civic organizations of the State. A complete catalog describing the material and service offered is mailed free upon request.

PHOTOGRAPHIC LABORATORY. The University of Wisconsin Photographic Laboratory is the central laboratory for University and State Departments. A staff of experienced workers is employed. The photographic equipment is of the best. Practically all types of photographic service are furnished at the bare cost of such service. All negatives are accessioned and filed so as to be readily accessible to the departments owning them. Close touch is maintained with developments in photographic practice for the benefit of those who wish assistance in doing their own photographic work, as well as for the benefit of the patrons of the laboratory.

BUREAU OF ECONOMICS AND SOCIOLOGY

ROY JEFFERSON COLBERT, *Ph.D.*, CHIEF

The object of the Bureau is to further a better understanding of the social and economic resources of Wisconsin; to make readily available to the people of the State the University's knowledge, experience, and researches in the handling of social and economic problems; and to stimulate interest in citizenship and good government.

The functions of the Bureau are: 1. To provide individuals, groups, and communities of the State with counsel, information, and services in its field, in cooperaton with other organized agencies, public and private; to assist local school authorities and county citizenship committees in the arrangement and conduct of their programs for citizenship training and induction of new voters. Such information and services are extended only when there is a definite request. 2. To collect, organize, and publish data relative to the social and economic resources of the State, in cooperation with the Departments of Economics, Sociology, and Political Science, and state governmental departments, and to make such information available to the schools and citizens of the State when they request it.

DEPARTMENT OF BUSINESS ADMINISTRATION

LESTER FRANK BRUMM, M.S., DEPARTMENT HEAD
HENRY ROWLAND ENGLISH, M.A., CHIEF, BUREAU OF BUSINESS INFORMATION

The Department of Business Administration operates a Bureau of Business Information at the University Extension Division where business men of Wisconsin may, without charge, receive answers to their inquiries regarding specific questions within the field of accounting, banking and finance, business English, business law, insurance, management, marketing, real estate, and statistics.

The Bureau, in addition to a reference library on business subjects, has extensive files of pamphlets, monographs, business magazines, trade journals, and clippings. It also receives regularly the Market Information Service of the United States Department of Commerce and numerous other publications issued by the federal and state governments, bureaus of business research, trade associations, and business organizations.

When an inquiry cannot be satisfactorily answered by letter, the Bureau prepares a package of books and materials from its files and lends it to the inquirer through the Department of Debating and Public Discussion of the University Extension Division.

The Bureau is not in a position to undertake any extensive researches. Research projects are referred to the School of Commerce, which will make such studies for the trade and financial organizations of Wisconsin as funds will permit.

FIELD ORGANIZATION

CHESTER ALLEN, DIRECTOR

For convenience and efficiency of administration the State is divided into districts, in which field representatives are permanently located. Persons living anywhere in the State are thus able to have a personal conference in their own city with a University representative from whom they may secure conveniently complete information regarding all the services of the Extension Division: correspondence-study courses; local classes; package libraries; lectures and short courses; lantern slides and motion picture films; and information on problems of business, economics, and sociology. The field representatives are ready at all times to give assistance in promoting these services in the interest of the local community.

Through the demand for education and training in the state penal institutions there has been developed, in cooperation with the State Board of Control, a special service for those institutions.

THE GRADUATE SCHOOL

EDWIN BROUN FRED, DEAN

ORGANIZATION, AIMS, AND METHODS

The work of the Graduate School is under the general direction of the Graduate Faculty. The Dean of the Graduate School is charged with general supervision of all graduate students and is the medium of communication between such students and the university administration.

In all departments of the Graduate School special emphasis is laid upon bringing the graduate student into contact with the research problems of his field of study. To this end able students share in the investigations of their instructors and are encouraged to acquire the spirit, as well as the methods, of productive work. Provision has been made by the university for the publication of the results of especially meritorious work of this kind and doctors' theses of more than common merit are often thus published; summaries of all Doctor of Philosophy theses are published each year.

ADMISSION

Admission to the Graduate School is based primarily upon the undergraduate record. In order to avoid delays, an applicant for admission should send to the Graduate School office several weeks in advance of his coming, a complete, official transcript of his undergraduate record and also of any graduate work he may have done. *An official transcript from each school attended is necessary.* Each record should be listed chronologically by semesters showing hours per week, weeks per semester, and grades received, and one record should include a notation of the high-school record. Students will not be permitted to register unless transcripts are sent in advance. Transcripts of students who register for graduate work become a permanent part of the university files and may not be returned.

Graduates of the University of Wisconsin with an average of 1.5 grade-points per credit will be admitted to full standing upon application. Those with a grade-point average between 1.25 and 1.5 may be admitted on probation for a trial period of at least one semester or two summer sessions before they may become candidates for an advanced degree. Wisconsin graduates may obtain permits to register in the Graduate School by writing directly to the Graduate School office.

Graduates of other institutions, either fully approved by the Association of American Universities and the various regional accrediting agencies, or maintaining standards and degree requirements similar to those of the University of Wisconsin will be admitted upon the following terms:

a. The same grade-point average is required of students from other institutions as is required of graduates at the University of Wisconsin (see above).

b. For full admission a student must have had at least 70 semester hours of academic work outside of his major. If the record does not show this number, this requirement must be met before he may be allowed to become a candidate for a degree.

c. Correspondence or extension work is not credited toward admission to the Graduate School unless it has been taken at the University of Wisconsin or at the institution from which the student was graduated. All such work will be checked

closely to see that it is done on a basis similar to that of extension work done at the University of Wisconsin.

d. A complete official transcript of the undergraduate work must be submitted. One transcript from each college attended is necessary.

e. Graduates of accredited colleges or universities who desire to enter the Graduate School, but who do not wish to become candidates for higher degrees at the University of Wisconsin, may be admitted on presentation of an official description of the Baccalaureate received.

Seniors in the University of Wisconsin who are within six credits of graduation and who have the required grade-point average may be admitted to the Graduate School. A senior registered for graduate credit may not drop a course without the approval of his major professor and the dean of his college.

Under certain conditions, a student in the College of Letters and Science or the School of Education who has completed his first four semesters at the University of Wisconsin with an average point-credit ratio of at least 2.6 may be permitted to pursue special studies with a view to being admitted to the Graduate School at the close of his seventh semester as a candidate for the master's degree in one additional semester. The detailed regulations are contained in the general announcement of the College of Letters and Science.

CANDIDACY FOR DEGREES IN THE GRADUATE SCHOOL

Admission to the Graduate School does not of itself imply admission to candidacy for a specific advanced degree. Admission to candidacy is determined only after a student has shown that he is qualified to pursue graduate study successfully.

The student's major department cannot in any way change requirements for admission to the Graduate School but may set up further specific requirements.

The nature of the student's undergraduate course will determine the specific master's degree for which he may become a candidate. Evaluation will be made to determine which of the various first degrees of the University of Wisconsin the student's work most closely approximates. In cases of wide divergence from the requirement for any one of the degrees of the University of Wisconsin, a student may be required to do additional work as prescribed by the Administrative Committee of the Graduate School.

The Graduate School is especially interested in students of outstanding ability. For this reason, the Administrative Committee is authorized to modify requirements in the case of students whose records indicate exceptional qualifications for graduate work.

Members of the faculty of the University of Wisconsin above the rank of instructor may not take a degree in course at the University of Wisconsin. This rule does not apply to members of the faculties of the Agricultural Extension Service and the University Extension Division working for the master's degree.

REGISTRATION

A permit to register in the Graduate School will be mailed to students who submit transcripts several weeks prior to the registration date. These permits should be presented in person on registration days at the Graduate School office, Room 150, Bascom Hall. Students will not be allowed to register unless transcripts are sent in advance.

STANDARD OF GRADUATE WORK

The standard of work on the graduate level requires that a student receive grades of "A" or "B" in all of his courses. When the work of a graduate student falls

below "B" grade, a representative of the major department is consulted. After such consultation the Dean of the Graduate School determines whether or not the student shall continue his graduate studies in the University.

FEES AND EXPENSES

(See Pages 2-4)

RESEARCH FUND

The State Legislature has provided a sum of money for the promotion of research in the University. In addition, the Wisconsin Alumni Research Foundation has provided funds for the support of research in the natural sciences. These funds vary from year to year.

UNIVERSITY PUBLICATIONS

(See page 5)

SUMMER SESSION WORK

There is a summer session of eight weeks in the Graduate School, especially designed to enable graduate students to make substantial progress toward a higher degree during the summer months. The time is sufficient for conducting graduate seminars and for carrying out important plans for study and research in the various laboratories and libraries of the University. Admission to the summer session is on the same basis as admission to a semester of work. See page 376.

The courses and seminars are planned for the first four days of the week, leaving Friday and Saturday free for intensive library and laboratory work. Arrangements can also be made for extending the period of residence. Registration for residence credit during periods when the University is not in session is intended primarily for students who have received the master's degree or who have been in residence for a period equal to that required for this degree. In rare cases, and upon formal recommendation of the department, students who have not yet received the master's degree may receive credit for no more than three weeks of such extra session credit. Application forms for extra session registration may be obtained at the Graduate School office.

The eight-week session in the Graduate School is in addition to the general summer session of six weeks, which is open to undergraduates and graduates.

Full residence credits for the six-week session, equivalent to one-third of a semester, may be earned by taking two six-week courses (4-6 credits) or one course (4-5 credits.)

Full residence credit for the eight-week summer session, equivalent to one-half of a semester, may be earned in any one of the following programs:

1. Two eight-week courses pursued for eight weeks.
2. One eight-week and two six-week courses.
3. One eight-week and one six-week course if extra work is assigned in the last two weeks of the eight-week course.
4. One eight-week and one six-week course plus thesis.

See page 385 for statement of fees and expenses in the Summer Session.

FELLOWSHIPS AND SCHOLARSHIPS

For the promotion of scholarship and research the Regents of the University have authorized various fellowships and scholarships in the Graduate School. Many of these are on a permanent basis, while others, particularly industrial fellowships, are

established for only a limited time. All fellowships and scholarships will be filled each year except where special funds supporting them do not permit. Men and women are equally eligible except where the donor has decreed otherwise. For detailed information write to the Dean of the Graduate School.

LOAN FUNDS

The Graduate Club has established a small loan fund for the use of graduate students in the last semester of their work toward the doctor's degree. Graduate students may also apply to the Committee on Undergraduate Loans and Scholarships for loans from the general loan funds.

SECOND DEGREES

NON-PROFESSIONAL DEGREES. The University of Wisconsin confers the following non-professional second degrees: Master of Arts, Master of Science, Master of Philosophy.

These degrees are conferred, in accordance with the conditions set forth below, upon graduates of the University of Wisconsin and upon graduates of other institutions of learning whose preliminary training has been substantially equivalent to that represented by the baccalaureate degrees of the University of Wisconsin. The University will determine this substantial equivalence of training and may impose upon any candidate such additional requirements as seem needful and just.

The degree, Master of Arts, is conferred upon candidates whose undergraduate work corresponds to that now leading to the degree, Bachelor of Arts, as conferred by the University of Wisconsin, and whose graduate studies are non-professional in character. The degree, Master of Science, is conferred upon candidates whose undergraduate work corresponds to that now leading to the degree, Bachelor of Science, as conferred by the University of Wisconsin, and may also be conferred upon holders of the degree of Bachelor of Arts who are adequately trained in mathematical, chemical, physical, or biological science. The degree, Master of Philosophy, is conferred upon candidates whose academic training corresonds to that leading to the degree, Bachelor of Philosophy, as conferred by the University of Wisconsin.

The minimum residence requirement for the master's degree is one full year or its equivalent in summer sessions.

The following regulations for the attainment of second degrees apply to all candidates in residence:

1. During a period of at least one academic year the candidate must pursue a course of graduate study characterized by definiteness of purpose and approved by the University as appropriate to that purpose and suitable in amount. At least one-half of the graduate work must lie in a single department. The undergraduate preparation of the candidate must be sufficient to satisfy the instructor that the advanced work may be profitably undertaken.

2. In order to receive full residence credit for a semester's work, a student must take *at least* the equivalent of nine credits of work. A normal graduate program is nine to twelve credits per semester.

3. Students who, during their candidacy for a second degree, are engaged in teaching, or other remunerated employment, will be required to devote to their studies such period longer than one year as may be designated by the Administrative Committee of the Graduate School.

4. The candidate must pass an examination upon the preliminary training and graduate work offered in support of his candidacy. The time and place of this examination will be determined and the examining committee appointed by the Dean of the Graduate School.

5. For students seeking to specialize in a definite line of study the preparation of a thesis may be required and, subject to the approval of the professor in charge, such

thesis work may be elected by others. A thesis offered in partial fulfillment of the requirement for a master's degree must be typewritten and bound according to specifications furnished by the Librarian of the University, and before it is accepted must be approved by the major professor under whose guidance it has been done. It shall be deposited in the University Library on or before the second Friday before Commencement, and its title, as approved in advance by the major professor, will appear in the Commencement Register.

6. It is desirable that graduate students complete the work for advanced degrees within a reasonable period of time. A candidate for a master's degree who does no graduate work for a period of five or more consecutive years is required to start anew to meet the requirements for the degree.

7. When graduate work at other institutions is offered for transfer toward a master's degree, only complete semesters or quarters will be counted. In no case may more than one semester (18 weeks) of residence be transferred from another institution if the student is to be awarded a master's degree by the University of Wisconsin. In some departments all the work for the master's degree must be done in residence at the University of Wisconsin.

Second Degree in Music. Superior graduates of reputable four-year courses leading to a bachelor's degree in music may be candidates for the second degree of Master of Music even though they do not satisfy the non-music academic requirements of our B.M. degree.

Second Degree in Social Work. The Degree of Master of Science in Social Work is granted to students upon completion of certain academic and professional training requirements.

Second Degree for Students in Professional Colleges. Graduates of approved institutions who are regularly enrolled in the professional colleges of this University may supplement their professional studies by work taken in the Graduate School. Upon the completion of an approved course of study they will be admitted to examination for the master's degree, to be conferred at the time of their graduation.

DOCTOR OF PHILOSOPHY

I. The Degree. The Doctor of Philosophy is a research degree. It is not a degree conferred solely as a result of study extending over any prescribed period; it does not rest merely upon any computation of time or any enumeration of courses. Questions of residence and plans of study, listed below as the minimum, are secondary. The granting of the degree is based essentially upon evidence of general proficiency and of distinctive attainments in a special field, and particularly upon the recognized power of independent investigation as shown by the production of a thesis embodying original research or creative scholarship and presented with a fair degree of literary skill.

II. Residence. Candidacy for the degree is based upon resident graduate study normally extending over a period of not less than three academic years, at least three semesters of which must be spent at this University. But it is to be understood that the mere completion of three years of resident study does not itself confer a right to take the final examination. The matter of time is determined by the character of a student's undergraduate record and by the quality of the work done in the Graduate School.

The residence requirement for the Doctor of Philosophy degree may not be satisfied by summer session attendance only. In addition to summer work a candidate is expected to spend at least a continuous year in residence for the purpose of continuity in his research work.

One whose undergraduate work is insufficient in amount or too narrowly specialized must count on spending additional time in preliminary studies essential for the advanced work the student purposes to undertake.

Candidates who are engaged in teaching or in other remunerative employment will be required to devote to their studies such period in excess of the minimum requirement of three years as may be designated by the Administrative Committee. It is suggested as a very desirable consideration that every candidate for the degree should arrange to devote at least one year exclusively to graduate study.

In order to receive full residence credit for a semester's work, a student must *take at least* the equivalent of nine credits of work. Nine to twelve credits per semester is considered a normal graduate program.

Residence as a graduate student in another institution of approved standing will be accepted at the University, but residence elsewhere will not reduce the minimum of three semesters of residence in this University; only complete semesters or quarters will be counted for transfer. In evaluating the time spent and work done elsewhere each case will be studied individually.

No *absentia* or correspondence work is now credited toward an advanced degree.

In order to give the work of a graduate student greater breadth, he may be granted absence from the University to do special investigation in the field or to take advantage of opportunities for research in a special subject not to be found in the University. Such leave of absence is granted by the Administrative Committee only in special cases.

III. Languages. A reading knowledge of both French and German is required of all candidates. Certificates of ability to read French and German must be secured from the departments of French and German and must be filed with the Dean of the Graduate School before the candidate is admitted to the preliminary examination. Certificates of such reading knowledge from other institutions are not accepted at the University of Wisconsin. In special cases the Administrative Committee of the Graduate School, upon the recommendation of the major department, may allow the candidate to substitute for one of the required foreign languages some other foreign language which can be shown to be more useful in the candidate's professional research.

IV. Plans of Study. The degree of Doctor of Philosophy is never granted for miscellaneous studies. The course as a whole must be rationally unified, and all constituent parts must contribute to some general object of study and research. The course must be selected from groups embracing one principal subject, called the major, and one or two subsidiary and cognate branches, called the minor.

Major Study. A candidate is required to select a field of study which may be in a single department, or in one of the "subjects" under which certain departmental plans of courses are arranged, or in two closely interrelated subjects. Only in the exceptional case will a major be allowed to extend beyond a single department and then only with the prior approval of the Dean of the Graduate School.

Minor Studies. Supplementary to his major study, a candidate is required to take a minimum of either ten or twelve credits in graduate courses (in the 100 or 200-groups) in fields other than that of his major. The courses are to be selected to form a coherent group. The requirement may be met according to Option A or B. Each candidate must pass tests set up in the case of Option A by the department or departments, and in the case of Option B, by the committee.

Option A. A minimum of ten credits in courses within a single department, or a minimum of twelve credits divided between two departments, the courses to be prescribed by the minor department or departments.

Option B. A minimum of twelve credits in more than one department in courses stipulated by a special committee of three or more members including the major professor. The Dean of the Graduate School will appoint the committee. Before the courses are taken the chairman will inform the Graduate School office of the courses selected and of the method to be followed in testing the candidate.

It is understood that the individual divisions and the departments not affiliated with divisions may prescribe higher regulations than are herein specified.

MAJOR PROFESSOR. A member of the department in which the student wishes to do his work will act as his major professor. The major professor will have immediate supervision of the thesis. It is one of the unique advantages of graduate life that a student comes into freedom of association with older scholars who will seek to make his study profitable by counsel and assistance and who will aid the student in acquiring for himself the discipline and method of independent scholarship.

DEPARTMENTS AND DIVISIONS. The work of the Graduate School as a whole is organized not only according to departments, but also according to divisions, each of which includes allied departments. The requirements fixed by a department or a division cannot be stated in terms at once specific and uniform. Information about the special requirements of departments or divisions is to be found in their separate announcements.

V. ADMISSION TO CANDIDACY. A student is permitted to take the final examination for the degree after he has been formally admitted to candidacy by passing the preliminary examinations in the major and minor fields. A student must satisfy the reading knowledge requirement in French and German before he is allowed to take the preliminary examinations. The preliminary examination in the major field must be taken not less than one academic year in advance of the date when the degree is expected to be conferred.

When the preliminary examination has been taken, the candidate shall file with the Dean a formal application to be admitted to candidacy for the doctor's degree. A blank form suitable for this purpose is furnished by the Graduate School office, and this formal application should embrace the following statements: (a) Departmental recommendations of candidacy based upon a formal written examination, or an oral examination before a duly appointed committee, or such other substantial test as the departments may elect. The nature of the test shall be stated in the recommendations. (b) The scope of the proposed minors with the approval of the professor who assumes charge of each minor. (c) The title of the proposed thesis approved by the major professor.

This application shall be submitted to the Administrative Committee, which may reject it for cause, or may approve it and admit the student to candidacy. With reference to time requirements imposed by the University, the Administrative Committee may specify the earliest permissible date for the final oral examination.

It is desirable that graduate students complete the work for advanced degrees within a reasonable period of time. If a candidate for the Doctor of Philosophy degree fails to take the final examination within five years after passing the preliminary examination, he will be required to take another preliminary examination and be admitted to candidacy a second time.

VI. FINAL ORAL EXAMINATION. Every candidate for the doctor's degree is subject to an oral examination upon the thesis and the general field of the major and minor studies, but the preliminary examination may be construed as final in certain aspects of the major and minor subjects if the professors in charge of the candidate's work are satisfied with his preparation.

The Dean of the Graduate School will appoint for each candidate an examining committee, usually composed of five persons, with the major professor as chairman. The time and place of the examination, to be arranged by the major professor, must be filed in the Graduate School office at least one week in advance of the examination. The candidate's completed thesis shall be presented to this committee, or in lieu thereof, the major professor shall state to the committee its purpose and scope and shall certify to the committee that the work upon the thesis is substantially completed. This examination shall be open to all members of the Graduate Faculty.

VII. THESIS. At any time after admission to candidacy, and at least thirty days prior to the final examination, the candidate is expected to submit to the Dean of the Graduate School, for approval of its mechanical form and execution, two typewritten copies of his completed thesis—one original and one duplicate copy. The Dean will furnish

an official title page for the thesis and appoint a committee of three consisting of the major professor and two members of the Graduate Faculty, to pass upon its substantial merit; their report, if favorable, shall be endorsed upon the official title page. In case of divided opinion among the examiners, the case shall be referred to the Administrative Committee with right of appeal to the Graduate Faculty. If approved, both copies of the thesis and one copy of the summary shall then be filed in the University Library.

THESIS SUMMARY. Since the University publishes the summaries of all doctoral dissertations it is desirable to examine these summaries and if necessary make editorial changes and suggestions covering such matters as grammar, punctuation, paragraphing, clarity and completeness of statement, arrangement of the material, and general effectiveness of presentation. Accordingly, the candidate is to bring to the Graduate School office for such examination a typewritten tentative draft of the summary.

Detailed information concerning the formal requirements for the summary will be sent to each candidate.

THESIS PUBLICATION FEE. All successful candidates for the doctorate shall pay a nonrefundable thesis summary publication fee of $10, with the understanding that the fund so collected each year will be used in the prompt publication of a volume of summaries, the length and character of these summaries to be determined by the Dean of the Graduate School.

SUMMER SESSION

SCOTT H. GOODNIGHT, DEAN

The Summer Session, instituted forty-two years ago as a period of study and review for teachers, has become an integral part of the University year, with nearly all departments represented. The courses range through all grades of undergraduate work to the most advanced graduate instruction and investigation. The work for teachers and for graduate students receives major emphasis, but very many undergraduate students of this and other colleges now avail themselves of the opportunity thus presented to shorten the period of their college residence or to make up deficiencies in either preparation of course requirements. They have the advantage in summer of being free from many of the distractions (inter-collegiate games, fraternity rushing, etc.) which obtain during the semester. At the same time there is no lack of social life and wholesome recreation during the summer.

Courses, both academic and professional, are offered for graduates and for undergraduates in letters and science, education, engineering, medicine, law, and agriculture, for teachers in colleges, agricultural schools, high schools, and technical schools, and for special students, as lawyers, doctors, chemists, writers, social workers, farmers, and practicing engineers. Virtually all the courses carry full academic credit. All the library, laboratory, and other facilities of the University are available during the summer, and the opportunities for thesis and advanced investigative work are particularly favorable at this time. A special bulletin, describing the various courses is issued annually, copies of which may be obtained upon application to the Dean of the Summer Session.

UNDERGRADUATES. The admission requirements for a student who desires credit toward a degree at Wisconsin are the same for the summer session as for the other sessions at the University; these are described in detail beginning with page 21. A student who desires to graduate from the University and who comes with advanced standing from a normal school or from another college or university, should submit a complete official record of his preparatory work and college credits to the Advanced Standing Committee, 166 Bascom Hall.

A student who wishes to secure credit toward graduation at some other institution, and who is not a candidate for a degree at Wisconsin, need not comply with the entrance requirements but may register upon presentation of a satisfactory statement of status and aims. Forms for such statements are provided in the summer session bulletin. Upon registration by this method, a student may enroll in any course or courses, which, in the estimation of the instructor in charge, he is able to carry to advantage. Upon satisfactory completion of such work, application may be made to the Registrar for a transcript of credits, stating the number of hours, work carried, and the grades earned. Credit toward graduation at this University, however, will be given only after complete matriculation by one of the regular methods.

GRADUATES. A general statement of work in the Graduate School may be found on page 376 of this catalog. The Graduate School also publishes special bulletins containing detailed information.

Special eight-week courses, mostly of graduate grade, although some may be taken by advanced undergraduates, are provided to enable students to earn a half semester of residence credit in a summer session. The inauguration of these courses does not alter the opportunities for graduate work in the six-week session, for all eight-week courses are open to six-week registrants.

CREDITS. The maximum number of credits which may be earned toward a degree at Wisconsin is six for the six-week session, eight for the eight-week session, eight for the ten-week session of the Law School, and one for each week of pre- or post-session or special work for which the student is properly registered. However, upon request, programs of seven or eight credits are authorized in the six-week session for purposes of transfer and for promotional credit in school systems. In the Graduate School, credit is by period of residence only, a six-week session yielding one-third of a semester and an eight-week session yielding one-half of a semester of residence credit toward a higher degree.

Each student not enrolled in the Graduate School will be required to carry at least four credits of work unless specifically exempted from this requirement by the Dean of the Summer Session. Students enrolled in the Graduate School will arrange their programs with the Graduate Office.

SUMMER SESSION FEES

INCLUDING TUITION, INCIDENTAL, AND INFIRMARY (BUT NOT LABORATORY) FEES

Both residents and non-residents of Wisconsin pay the same fees.

I. For undergraduates in all colleges and schools:

Classifications:

Railway Engineering	2 weeks	$ 9.50
Field Courses	4 weeks	19.00
Chemical Engineering	5 weeks	26.50
General Session—Undergraduates	6 weeks	31.00
Special Session—Undergraduates	8 weeks	40.00
Law School	10 weeks	52.00

II. For graduates admitted to registration in the Graduate School:

General Session Graduate School	6 weeks	$34.00
Special Courses Graduate School	8 weeks	49.00

PRE- AND POST-SESSION FEES

Undergrauate: $4.50 per week. If registrant was not in Summer Session, $5.50 for first week, and $4.50 for each succeeding week.

Graduate: $5 per week. If registrant was not in Summer Session, $6.00 for first week, and $5 for each succeeding week.

Graduate students pursuing no courses but who are candidates for an oral examination during the session, may register after the third week of the session for a fee of $10, but may earn no credit. The Graduate School also charges such students an examination fee of $10.

REFUND OF FEES. Upon recommendation of the Registrar, the Cashier is authorized to make partial refund of fees to students withdrawing early from the Summer Session in accordance with a schedule published in the summer session bulletin.

OTHER EXPENSES. In courses involving laboratory work, additional fees are charged; these correspond closely to the laboratory fees charged for the same courses taken during the academic year. Other expenses for the six-week session may be estimated from the following: room-rent $12-$30; board, $30-$45; books and classroom materials, $8-$15; incidental expenses, including laundry, $12-$40; total, not including fees or traveling expenses, $62-$130.

PHYSICAL EDUCATION

The aims of the Departments of Physical Education are (1) to promote the physical development of the students by contributing to their health, organic vigor, and good physical habits; (2) to provide an incentive and an opportunity for every student to engage in some physical activity at least one hour daily as a balance to the sedentary demands of university life; (3) to provide the opportunity for students to participate in and secure a reasonable degree of skill in a program of leisure time or carry-over activities both for immediate and later appreciation; (4) to offer opportunities for worth-while social contacts in the activities of the general program, and in intramural sports and contests; (5) to train physical educators and play leaders; and (6) to promote a more effective organization of play and administration of physical education throughout the state of Wisconsin.

EXEMPTIONS AND DEFERMENTS. All applications for deferment of or exemption from physical training for men must be made at the office of the Director of the Men's Gymnasium; (women will apply to the Director of the Women's Department in Lathrop Hall). In no case will permission be granted to defer work for more than one semester at a time, and no deferment work will be allowed to extend into the senior year.

EXEMPTIONS

1. Students who are physically unfit, as certified by the Department of Student Health.

2. Normal-school graduates and those who enter the University with college credits sufficient to give them sophomore standing.

3. Students from institutions of college or university rank who have taken accredited courses in physical education, providing proper credentials are presented.

4. Adult special students over 23 years of age who are not candidates for degrees.

5. Other cases, at the discretion of the Director.

DEFERMENTS REQUIRED TO BE MADE UP

1. Self-supporting students where the hours of labor actually conflict with hours of required work.

2. All cases not falling under any of those previously mentioned.

MEDICAL AND PHYSICAL EXAMINATIONS. The organic condition, stage of physical development, and degree of motor efficiency attained by each entering freshman are determined at the opening of the college year by a series of examinations and tests made by the Department of Student Health and the Division of Physical Education. An endeavor is made to outline for each student a proper regimen of exercise, diet, rest, and work. Students are classified on an organic scale and are permitted to engage only in sports and games for which they are physically fitted. Candidates for all freshmen squads, intramural teams, and intercollegiate athletic squads must secure permission of the Departments of Student Health and Physical Education before reporting for participation.

VOLUNTARY EXERCISE. All students are urged to take at least one hour of recreative exercise each day, and the facilities of the entire department are open for this purpose whenever not required for prescribed activities. Advice and direction may be secured by any student at any time. All advanced practice courses are open to any student fitted

to take them. All students are privileged to make use of all gymnasium and intramural facilities.

DIVISION OF PHYSICAL EDUCATION AND INTRAMURAL ATHLETICS—MEN

GUY S. LOWMAN, DIRECTOR

The Division of Physical Education and Intramural Athletics for men has jurisdiction over all required and intramural physical education activities.

REQUIREMENTS FOR MEN. All freshman men are required to take three hours a week of either physical education, military science, or band instruction. The requirement in physical education may be satisfied in part through participation in team sports or intramural sports, or through physical education classes. These may be selected from the list of activities given below. All students who are not physically fit to participate in the sport program are required to enroll in corrective or health classes. Students electing any phase of physical education must register at the Men's Gymnasium at the regular appointed time at the beginning of each semester.

All students taking physical education are required to be able to swim a distance of 50 yards by the end of the freshman year, and to pass a test in knowledge, skill, and ability in those activities which they have elected.

VARSITY SPORTS

Baseball	Swimming	Ice Hockey	Cross-country
Basketball	Track	Skating	Football
Crew	Wrestling	Skiing	Golf
Fencing	Gymnastics		Tennis

INTRAMURAL SPORTS

Basketball	Badminton	Track (indoor)	Diamondball
Bowling	Boxing	Water-polo	Golf
Cross-country	Hockey	Wrestling	Tennis
Touch football	Swimming	Baseball	Crew
Volleyball			

PHYSICAL EDUCATION CLASSES

Basketball	Tumbling, apparatus	Handball	Canoeing
Fencing	and stunts	Swimming (advanced)	Corrective
Football (touch)	Volleyball	Track	Cross-country
Soccer	Badminton	Baseball (playground)	Gymnastics
Swimming (beginners)	Boxing		Tennis

ATHLETIC COMPETITION FOR MEN. Intramural tournaments and contests for men are conducted in all games and sports, and their conduct and management are under the supervision of the Division of Physical Education and Intramural Athletics. An Advisory Board, consisting of three representatives from fraternities, two from dormitories, and two from the independent groups, advise with the department in all matters pertaining to intramural administration.

INTERCOLLEGIATE ATHLETICS

HARRY STUHLDREHER, DIRECTOR

The University is a member of the Western Intercollegiate Conference Athletic Association and maintains representative teams in all intercollegiate sports. The requirements for membership on an intercollegiate team are as follows: one year's residence at

the University; regular enrollment and a full program of studies in the college or school in which the student is enrolled; no disciplinary probation; no unsatisfied failure, condition, or incomplete.

Intercollegiate sports are under the government of the Athletic Board, a committee of seven members consisting of four faculty members, two representatives of the Alumni Association, and the president of the Student Athletic Board. The four faculty members of the Board are chosen by the President, in conjunction with the University Committee; the two alumni members are chosen by the President from a panel of six nominees presented by the Alumni Association. All appointments are subject to confirmation by the Board of Regents.

WOMEN'S DEPARTMENT

BLANCHE M. TRILLING, DIRECTOR

OPPORTUNITIES FOR PARTICIPATION. The Women's Athletic Association, organized on the basis of clubs, co-operating with the department, offers a variety of intramural activities such that every girl may enjoy some form of exercise and competition.

Hockey Club, Bowling Club, Basketball Club, and the other sport clubs offer their members an opportunity for participation in the more formal types of organized competition. Outing Club promotes interest in such activities as hiking, skiing, coasting, tobogganing, skating, canoeing and bicycling and weekend parties at the Cottage on the shore of Lake Mendota and at Youth Hostels in this vicinity. Dolphin Club stimulates interest in swimming, diving, and water games; Orchesis, both junior and senior divisions, offers an opportunity for the study of the dance beyond regular scheduled classwork; Bit and Spur promotes informal group riding and more advanced instruction.

All students are privileged to make use of any gymnasium and intramural equipment.

REQUIREMENTS FOR WOMEN. The equivalent of three hours a week is required in each season of all freshman women, to be elected from the list of activities given below.

The college year is divided into four terms, (1) Fall—September to November; (2) Winter—November to February; (3) February to April; (4) Spring—April to June. At the beginning of each semester, all women taking elective or required work must register in Lathrop Hall for their work for the coming semester. This must be done at the appointed time regardless of whether physical and medical examinations have been taken.

PROGRAM OF ACTIVITIES

Conditioning	Tennis	Dancing	Baseball
Field Hockey	Volleyball	Fencing	Canoeing
Golf	Badminton	Skating	Corrective work
Riding	Basketball	Skiing	Riding
Swimming	Bowling	Archery	

MILITARY SCIENCE

WILLIAM G. WEAVER, *B.S., B.A.*, Lieutenant Colonel of Infantry, USA, Commandant and Professor of Military Science

CARL EUGENE DRIGGERS, Major (Retired), USA, Assistant Professor of Military Science

HERBERT HORTON LEWIS, Major of Infantry, USA, Assistant Professor of Military Science

tary Science

CORNMAN LOUIS HAHN, *B.S.*, Major, Corps of Engineers, USA, Assistant Professor

CLARENCE L. STRIKE, *B.E.*, Lieutenant Colonel, Signal Corps, USA, Assistant Professor of Military Science

ALFRED G. ANDERSON, First Lieutenant of Infantry, USA, Assistant Professor of Military Science

JOHN O. NEIGHBOURS, Second Lieutenant, Corps of Engineers, USA, Assistant Professor of Military Science

ROBERT C. STOREY, Second Lieutenant of Infantry, USA, Assistant Professor of Military Science

CHARLES SAMUEL HOOD, Master Sergeant, USA Retired, Assistant to the Commandant

OBJECT AND SCOPE OF INSTRUCTION

The primary object of instruction in the Department of Military Science and Tactics is to train students in the performance of the duties of commissioned officers. This instruction prepares students for leadership in civil life as well as in the military service.

The department offers two successive, two-year, courses in military science—*Basic* and *Advanced*. Enrollment in the basic course is open to all male students between the ages of 14 and 26 who are citizens of the United States and who meet the physical requirements. Enrollment in the Advanced Course is limited to specially selected students who have completed the basic course. Completion of either course, shall, when entered upon by a student, be a prerequisite for graduation unless in exceptional cases, the student is discharged from the ROTC on the recommendation of the Professor of Military Science and Tactics. Completion of the basic course satisfies the physical activity requirement of the University. This physical activity requirement specifies that all students throughout their freshman year engage in some specific physical activity at the rate of three class hours a week. Men may elect military science, physical education or band to fulfill this requirement.

Instruction within the department is conducted by Regular Army Officers in three units of the Reserve Officers Training Corps—Infantry, Engineer and Signal Corps. Enrollment in the Engineer unit is limited to students pursuing academic courses in engineering and enrollment in the Signal Corps unit, except in special cases, is limited to students taking academic courses in electrical engineering.

One academic credit is given for each semester's work in the basic course and two academic credits for each semester's work in the advanced course. Instruction in the basic course is carried on for 3 hours each week and in the advanced course for five hours each week. Students enrolled in the advanced course are also required to attend one summer camp of six weeks' duration. Upon satisfactory completion of the advanced course, including the prescribed summer camp training, graduates thereof, who are 21 years of age are offered commissions as Second Lieutenants in the appropriate branch of the Organized Reserve Corps of the Army of the United States. Such graduates who are not 21 years of age are given certificates of eligibility for commission. Upon reaching the age of 21 those students are offered commissions in the Organized Reserve Corps without further examination.

Students entering the University who have previously completed courses in other Junior or Senior units of the Reserve Officers Training Corps, in a school or college conducting military training under an officer of the Army detailed as Professor of Military Science and Tactics or at the United States Military Academy may apply for advanced standing in the Department of Military Science at this University. Such applications should be made to the Professor of Military Science and Tactics at the time of registration. Advanced standing can not be given to students who have received military training other than that mentioned above. Students from other institutions admitted to the Advanced Course are given only one credit per semester during their freshman year. In the sophomore year the regular 2 credits per semester are awarded.

Fees and Uniforms. Students enrolled in the advanced course are paid a "commutation of subsistence" at the rate of about $7.50 a month for twenty-one months. They are also paid at the rate of $21.00 a month while attending summer camp. Transportation to and from camp as well as subsistence and quarters are furnished by the Government.

Uniforms and equipment are furnished by the Government. Students taking the basic course are required to pay a fee of $2.00 each semester, and those taking the advanced course pay one fee of $7.50 at the beginning of the course.

Extra-Curricular Activities. The department maintains representative rifle and pistol teams. Both squads receive training in shooting for about five months during the year, and fire correspondence matches with all the leading schools and colleges in the United States, as well as several shoulder-to-shoulder and special matches.

Drill teams are maintained by the department composed of selected students. These compete with teams of other institutions and also appear in exhibition drills on occasions.

Scabbard and Blade is a national honorary fraternity, founded at Wisconsin in 1904, to which advanced course students are eligible for membership.

Pershing Rifles is a national honorary fraternity in which basic course students are eligible for membership. A student chapter of the American Society of Military Engineers, a national professional society, was organized here in 1938. Engineer advanced course students are eligible for membership.

BASIC COURSES

1. First-Year Basic Infantry. Yr; 1 cr. Citizenship; military history; military courtesy and discipline; field sanitation; map reading; leadership; rifle marksmanship. Major Lewis.

2. First-Year Basic Engineer. Yr; 1 cr. Same as Military Science 1. Major Lewis.

3. First-Year Basic Signal Corps. Yr; 1 cr. Same as Military Science 1, except that elementary wire communication is substituted for rifle marksmanship. Major Lewis.

21. Second-Year Basic Infantry. Yr; 1 cr. Leadership; automatic rifle; infantry weapons; musketry; scouting and patrolling; combat principles. Lt. Storey.

22. Second-Year Basic Engineer. Yr; 1 cr. Leadership; infantry weapons; musketry; scouting and patrolling; military sketching and mapping; aerial photography. Lt. Neighbours.

23. Second-Year Basic Signal Corps. Yr; 1 cr. Leadership; radio field systems, material and procedure; code practice. Lt Col. Strike.

ADVANCED COURSES

131. First-Year Advanced Infantry. Yr; 2 cr. Motor vehicles; chemical warfare; aerial photographic reading; leadership; weapons; combat principles. Col. Weaver.

132 First-Year Advanced Engineer. Yr; 2 cr. Military roads; military bridging; domilitions; chemical warfare; field fortifications; leadership; combat principles. Major Hahn.

133. First-Year Advanced Signal Corps. Yr; 3 cr. Advanced wire and radio communication; tactics and technique of signal communication; aerial map reading; organization; leadership. Lt. Col. Strike.

141. Second-Year Advanced Infantry. Yr; 2 cr. Military history; military law; property; leadership; tanks and mechanization; combat principles. Lt. Anderson.

142. Second-Year Advanced Engineer. Yr; 2 cr. Military history; military law; leadership; property; combat principles; military bridging; organization of the ground. Major Hahn.

143. Second-Year Advanced Signal Corps. Yr; 1 cr. Military law; military history; leadership; training management; property; motor transport. Students attend Military Science classes 3 hrs. per week. Credit for elected EE courses or special Signal Corps courses arranged for through instructor. Lt. Col. Strike.

DIVISION OF SOCIAL EDUCATION

The Division of Social Education was established in 1935 to develop the teaching and guidance functions of the Union, the campus community center. The educational officers of the Union serve as the division staff. The division complements other personnel agencies in ministering to the social and recreational welfare of the student body. Specific educational functions include "counselling and instructing students in the administrative and professional aspects of community service," and "utilizing its facilities as laboratories for those academic departments wishing to give credit for practical work (in cultural, social or administrative fields) that is performed under the supervision jointly of the department instructor and the educational officers of the Union."

The division cooperates with the sociology department by providing laboratory opportunities for a sociology course, "Recreation and Group Work Practice," thus assisting in preparing students for lay or professional leadership in recreation fields. Students obtaining teachers' certificates may also participate in this course inasmuch as the Union practice work is closely related to the advising and leadership of school groups in extra-curricular activities and recreation. The department of art education offers practice teaching credit for the work done by students who instruct art and hobby classes under supervision of the social education staff.

Students in school of education courses, "Educational and Vocational Guidance" and "Job and Occupational Analysis," are given credit for field work under the joint supervision of instructors in vocational guidance and social education.

The Union staff offers specific training and counsel in the administrative and professional aspects of community recreation leadership and service to the above-mentioned students and to students working on house committees and campus projects.

Another current service of this division is a non-credit orientation series of lectures and discussions on the problems of courtship and marriage, offered to students without prerequisite with the cooperation of five other university departments.

Also among the non-credit offerings of the division is informal instruction for groups and individuals in social dancing, skiing, archery, billiards, bowling, photography, crafts, life drawing, scene painting, and stage management.

ASSOCIATED SCIENTIFIC INSTITUTIONS

FOREST PRODUCTS LABORATORY

C. P. WINSLOW, DIRECTOR

The Forest Products Laboratory is a scientific institution engaged in research for the Forest Service, United States Department of Agriculture, in cooperation with the University of Wisconsin. The final objective of the organization is to guide and stimulate the economic development and maintenance of forests through more efficient utilization leading to profitable markets for forest products. To this end it conducts research on the basic properties of wood and other forest products and on improved methods of production, processing, handling, and use; it cooperates, both in its research and the application of the results, with public and private agencies also interested in the utilization of forest lands. The staff of the laboratory cooperates with that of the University of Wisconsin in the courses of lectures and research outlined below. The laboratory offers unusual facilities for research in the field of forest products and possesses very complete scientific and technical equipment for this purpose. In its investigations it approximates closely commercial conditions and cooperates extensively with the various manufacturing establishments in testing out its research on a commercial basis.

The technical investigations of the laboratory are as follows:

(1) Mechanical Properties of Wood. Investigations of strength, stiffness, hardness, and other mechanical properties of commercial woods; effect of treatments on strength; improvements in structural design and fabrication of wood structures.

(2) Seasoning of Wood. Determination of best methods of air drying and kiln drying to eliminate losses; design and operation of dry kilns; studies of commercial kilns; physical properties of woods; moisture content of wood in dwellings.

(3) Shipping Containers. Study of wooden and fiber shipping containers, with special reference to design and specifications to develop containers which will deliver the contents to the consumer in a satisfactory condition at a minimum total cost.

(4) Plywood, Glues, and Laminated Stock. Study of plywood manufacturing problems; strength and design of plywood; development and improvement of glues; study of new uses for laminated construction in commercial work.

(5) By-Products and Chemical Studies. Research in organic, physical and biological chemistry of woods, cellulose, lignin, extractives, and naval stores. Methods of modifying the properties of wood and of converting wood waste into useful commodities; chemistry of wood preservatives.

(6) Wood Preservation. Research on fungi that attack structural timbers, with investigations aimed at practical means of prevention; the efficiency of various wood-preserving processes and preservatives; other processes to modify the properties of wood, such as fire-resistant and anti-shrink treatments; paints and painting practice.

(7) Pulp and Paper. The suitability of woods and other fibrous materials for pulp, paper, and fiber specialties; studies in the chemistry and engineering of pulping and paper-making processes; chemical and physical studies of pulps and papers.

(8) Silvicultural Relations. Identification of wood; the effect of growth conditions on the structure of wood; and the relation of the structure of wood to its properties.

(9) Technical Studies of Wood-Using Industries. Study of the economic utilization of wood with a view to eliminating waste; lumber grades and specifications; methods of measuring, manufacturing, and marketing logs, lumber and small dimension stock; development of efficient uses of wood.

The lectures and research offered by the staff of the laboratory are available to both undergraduates and graduates.

STUDENT RESEARCH ASSISTANTSHIPS. Students who show unusual ability in research may be appointed as student research assistants in this laboratory by the Forest Service or by the Bureau of Plant Industry, in accordance with the regulations of the United States Civil Service Commission, at a salary not exceeding $40 per month. Application for these assistantships must be made to the Director of the Forest Products Laboratory. The number of students thus appointed will largely depend upon the funds available and the number of suitable problems taken up by the laboratory for solution. Students may choose one problem as major or minor work for a thesis as part of the requirements for a higher degree.

LECTURE AND LABORATORY COURSES. These courses do not supply the needs of students desiring to take up the study of forestry as a profession. The College of Agriculture offers two years of pre-forestry work after which such students should enter one of the regular forestry schools.

FORESTRY AND WOOD TECHNOLOGY

HARRY DONALD TIEMANN, *M.E., M.F.*, Lecturer in Forest Products
ELOISE GERRY, *Ph.D.*, Lecturer in Forest Products
ARTHUR KOEHLER, *M.S.*, Lecturer in Forest Products
LORRAINE JOSEPH MARKWARDT, *C.E.*, Lecturer in Forest Products
CLARICE AUDREY RICHARDS, *Ph.D.*, Lecturer in Forest Products
THOMAS ROY TRUAX, *M.S.*, Lecturer in Forest Products
THOMAS RANDALL CARSON WILSON, *C.E.*, Lecturer in Forest Products

1. GENERAL FORESTRY. I; 2 cr. Open to all students with the exception of freshmen in Letters and Science. Outdoor study of native trees, supplemented by lectures on forest conditions in the United States, forest history conservation, utilization and policy. Mr. Tiemann.

101. PROPERTIES OF WOOD. I; 2 cr. Structure of wood as related to its properties. Physical, mechanical, and chemical properties; pulping characteristics; gluing characteristics; relation of defects and fungi to wood properties. Prerequisite: Forestry 1. May be preceded or followed by Course 102. Offered 1941-42 and in alternate years. Mr. Koehler and staff.

102. WOOD TECHNOLOGY. II; 2 cr. Wood as a biological product, its anatomy and variations with species; properties and utilization; moisture relations; kiln drying. Mr. Tiemann.

119. FUNGOUS DETERIORATION OF FOREST PRODUCTS. I; 2 cr. Designed to familiarize the student with the fungous defects in wood products; the morphology of the causal organisms, their temperature and moisture relations, and methods of control; the technique of sectioning and staining wood and isolating the causal organisms. Offered 1941-42. Lab. fee $2.25. Miss Richards.

200. RESEARCH IN FOREST PRODUCTS. Yr; *cr. Microscopic structure of wood in relation to growth conditions and properties. Mr. Koehler, Miss Gerry. Cytophysiology of oleoresin and other xylem and phloem secretions. Miss Gerry. Fungus deterioration of forest products. Miss Richards.

CHEMISTRY OF FOREST PRODUCTS

ROY HERMAN BAECHLER, *Ph.D.*, Lecturer in Forest Products
MARK WILDER BRAY, *B.A., M.S.*, Lecturer in Forest Products
FREDERICK LINCOLN BROWNE, *Ph.D.*, Lecturer in Forest Products
CARLETON EDGAR CURRAN, *Ph.D.*, Lecturer in Forest Products
ELWIN ELMER HARRIS, *Ph.D.*, Lecturer in Forest Products
LEE FRED HAWLEY, *Ph.D.*, Lecturer in Forest Products
GEORGE MCMONIES HUNT, *B.S.*, Lecturer in Forest Products
CLARICE AUDREY RICHARDS, *Ph.D.*, Lecturer in Forest Products
GEORGE JOSEPH RITTER, *Ph.D.*, Lecturer in Forest Products
EARL CHARLES SHERRARD, *Ph.D.*, Lecturer in Forest Products
ALFRED JOAQUIN STAMM, *Ph.D.*, Lecturer in Forest Products

103. INDUSTRIAL CHEMISTRY APPLIED TO FOREST PRODUCTS. II; 2 cr. Includes course of lectures descriptive of industrial chemical processes that use wood and wood waste, such as pulp and paper, wood distillation, and wood preservation, and the chemistry of various forest products. Prerequisites: Chemistry 120, 121. Offered 1941-42 an in alternate years. 4:30 TT. Mr. Hawley, Mr. Baechler, Mr. Sherrard, Mr. Ritter, Mr. Curran, Mr. Bray, Mr. Stamm, Mr. Harris.

200. RESEARCH IN FOREST PRODUCTS CHEMISTRY. Yr; *cr. Coal tars, wood tars, and wood preservatives. Mr. Baechler. The chemistry of wood extractives and wood lignin. Mr. Sherrard, Mr. Harris. General wood chemistry. Mr. Hawley, Mr. Ritter. The chemical action of bacteria and fungi on wood and pulp. Mr. Bray, Miss Richards. Physical and colloidal properties of wood and wood products. Mr. Stamm. Pulp and paper. Mr. Curran, Mr. Bray. Wood preservation and glues. Mr. Hunt, Mr. Browne.

STATE LABORATORY OF HYGIENE

W. D. STOVALL, DIRECTOR, PROFESSOR OF HYGIENE

The State Laboratory of Hygiene, located in the Service Memorial Institutes Building on the university campus, is at once a university laboratory and the central laboratory for the State Board of Health. The staff is occupied in teaching, in the development of laboratory tests which are of assistance in the diagnosis and control of communicable diseases, in other laboratory procedures with which sanitary science is concerned, and in special investigation.

Last year 111,133 specimens for the diagnosis of diphtheria, typhoid fever, anthrax, rabies, tuberculosis, whooping cough, and other diseases were received from physicians, health officers, public health nurses, and others throughout the State. The facilities of the laboratory are used by three-fourths of the physicians in the State. Prophylactic vaccines are distributed free from the laboratory, and silver nitrate ampules are prepared for free distribution by the State Board of Health.

For the convenience of physicians and health officers, cooperative laboratories have been established in Beloit, Green Bay, Kenosha, La Crosse, Oshkosh, Rhinelander, Sheboygan, Superior and Wausau. The State contributes a portion of the funds required for the operation of each of these laboratories, and the respective cities supply the remainder. These branch laboratories are under the supervision of the director of the State Laboratory of Hygiene, act ng for the State Board of Health.

The principal work of both the central and the branch laboratories is in the development and improvement of procedures and new methods of diagnosing, preventing, and controlling communicable diseases, and in the dissemination of information of this sort into every community of the State, thereby directly or indirectly touching the welfare of every citizen.

UNITED STATES WEATHER BUREAU

ERIC R. MILLER, METEOROLOGIST IN CHARGE

The University of Wisconsin has cooperated with the national weather services throughout its history. The first meteorological observations at Madison, covering the period 1853-1864, were made at North Hall by Professors J. W. Sterling and S. H. Carpenter with standard instruments furnished by the Smithsonian Institution. The work came to an end during the Civil War, but was revived in 1869 by Professor W. W. Daniells, pioneer professor of agriculture. The supervision of the net of observers throughout the country was taken over from the Smithsonian Institution by the Chief Signal Officer of the Army in 1874, with whom Daniells cooperated until October, 1878, when an official station, manned by non-commissioned officers, was established on the site of the present First Central Building. This station was discontinued in April, 1883, and its instruments turned over to Washburn Observatory.

In September, 1904, a branch of the Weather Bureau, U. S. Department of Agriculture was established at Madison, in North Hall at the University where the original observations had been begun 51 years earlier. This office is fully equipped with standard apparatus and is manned with professional observers. Reports from other observing stations distributed throughout the United States and Canada are received by teletype, and weather forecasts and bulletins are prepared and distributed through the newspapers, radiophone broadcasting stations, and the mail, to the public in central and southwestern Wisconsin. The office has extensive files of records of weather and climate both local and general. It is open to the public from 9 a.m. to 4 p.m. daily except Sundays, holidays, and Saturday afternoons.

WASHBURN OBSERVATORY

JOEL STEBBINS, DIRECTOR, PROFESSOR OF ASTRONOMY

The Washburn Observatory was established in the year 1878 through the munificence of the late Governor Cadwallader C. Washburn. Although its obligations and opportunities as a branch of a teaching university have not been ignored, the energies of its staff from the beginning have been directed mainly to astronomical research. Among the lines of research cultivated have been the measurement of the positions and motions of the heavenly bodies, the discovery and measurement of double stars, with investigations of their orbits, the study of changes of latitude and the amount and character of the atmospheric refraction, the determination of the amount of the aberration of light, proper motions of faint stars, a systematic investigation of the parallaxes of stars, the photoelectric photometry of stars, and the determination of absorption in inter-stellar space from the colors of stars.

The principal instruments of the observatory are refracting telescopes of 15.6 and 6 inches aperture with optical parts by Alvan Clark and Sons. Both telescopes have been provided with modern mountings constructed in the shops of the College of Engineering. There are precision clocks by Howü and by Howard and equipment for the reception of radio time signals.

In the students' observatory is housed the 6-inch refractor and a 3-inch transit instrument of the broken telescope type by Bamberg. The observatory also possesses a considerable number of subsidiary instruments such as portable telescopes, photometers, chronometers, sextants, engineers' transits, and altazimuth, a universal instrument, calculating machines, photographic equipment, and nautical charts and instruments.

For the past decade the main work of the observatory has been in the field of photoelectric photometry, and there are facilities for experiments with photo-tubes, electrometers, and amplifiers. There is a small but well equipped shop in which various pieces of research apparatus have been constructed.

The Woodman Astronomical Library, supported from the income of a fund given by the late Cyrus Woodman, contains approximately 6500 volumes and 3000 pamphlets. The publications of the leading observatories of the world are received on exchange, and a complete file of current astronomical journals is available.

The results of investigations conducted at the Washburn Observatory are published by the State, and fifteen volumes, representing the more important work done, have been issued.

Students of sufficient technical attainment are admitted to the observatory and take part in the investigations in progress. Meritorious original work of such students may be included in the publications of the observatory. For the courses of instruction in astronomy see page 97.

WISCONSIN GEOLOGICAL AND NATURAL HISTORY SURVEY

E. F. Bean, State Geologist

This Survey has always been closely associated with the University. Its origin dates from a motion offered by Dr. C. R. Van Hise to the Wisconsin Academy of Sciences in 1893, calling for the appointment of a committee to secure legislation establishing such a survey. The committee, with Dr. Van Hise as chairman, took up the task and finally secured the establishment of the Survey by the legislature of 1897. The offices and laboratories of the Survey are in university buildings. In 1931, the Survey was placed under the charge of the Board of Regents of the University.

The Survey was at first organized in two divisions—Geology and Natural History; the legislature of 1909 added a third division by establishing a Soil Survey of the State, From the first much attention was given to highways, and a Highway Division was organized in 1907; active work in this field was carried on until 1911, when the legislature created the Highway Commission and made the State Geologist one of its members.

The Geology Division was under the charge of Dr. W. O. Hotchkiss from 1906 to 1925; since that date Mr. E. F. Bean has been State Geologist. This is the largest division of the Survey and has issued numerous maps and reports on the general and economic geology of the State. It has investigated also such subjects as water power, underground waters, peat, and clays. Careful surveys are made of materials available for road construction, with a success which has been worth to the State several hundred thousand dollars annually. The study of underground waters has made the Survey an authority on the supply of water from artesian wells. Topographic maps which are necessary for all engineering undertakings have been made in cooperation with the United States Geological Survey. The geography and physical geography of the State have been studied, and numerous bulletins have shown the connection between the geological and the social history of the several regions of Wisconsin.

The Soils Division has carried on a soil survey which will result in a complete soil map of the State. The work, directed by Professor A. R. Whitson, is done in cooperation with the United States Department of Agriculture and the College of Agriculture of the University. Soils are studied with reference to their best agricultural use and the fertilizer and other treatment necessary to make them most productive, including a sudy of the limestones, marls, and by-products from manufacturing plants available as a source of lime. Special attention is given the adaptability of particular soils to special crops such as potatoes, tobacco, and canning crops. Numerous maps and bulletins showing the nature and distribution of the types of soils and their agricultural uses have been published. A reconnaissance survey of the northern part of the State has been completed, and detailed county surveys covering a large part of the southern half of the State have been made.

The Natural History Division is under the immediate charge of Dr. Birge, President-Emeritus of the University. It has issued numerous bulletins on specific topics relating to the botany and zoology of the State. Its main continuous work has been on the inland lakes. Many hydrographic maps have been made, as well as studies of the temperatures of the lakes, the chemical composition of their waters, and the plants and animals inhabiting them. The main problem to which all these studies lead is that of the nature and quantity of the fundamental food supply of the lakes, its variation with season and year, and the resulting economic value of the lakes.

During the summer months the Survey employs university students as assistants in field work. This arrangement enables students to gain practical experience during their university careers. The close cooperative relationship existing between the University and the Survey is very valuable to both.

STATE OF WISCONSIN GENERAL HOSPITAL

R. C. Buerki, Superintendent

The State of Wisconsin General Hospital is established in connection with the Medical School of the University of Wisconsin. The University Infirmary and the Mary Cornelia Bradley Memorial Hospital, previously established, are integral parts of the Hospital (Sec. 36.21, Stat. 1923). The Children's Orthopedic Hospital (Sec. 36.32, Stat. 1929) is closely affiliated.

The main hospital building is designed as a memorial to those who served in the World War. It was built and equipped from the balance in the Service Recognition Fund (Chapter 20, Spl. S., 1920.)

The chief purposes of the hospital are defined as follows: (1) Primarily for the care of persons afflicted with a malady, deformity, or ailment of a nature which probably can be remedied by hospital service and treatment, who would be unable otherwise to secure such care. (2) For such instruction of medical students, physicians, and nurses and for such scientific research as will promote the welfare of the patients committed to its care and assist in the application of science to the alleviation of human suffering (Sec. 36.31, Stat. 1923).

WISCONSIN PSYCHIATRIC INSTITUTE

W. F. Lorenz, *M.D.*, Director, Professor of Neuropsychiatry

The Wisconsin Psychiatric Institute was originally developed under the Board of Control of the state of Wisconsin. It was started in 1915 at Mendota, but on July 1, 1925, was transferred by legislative act to the University. Its principal purpose is to investigate causes of insanity and allied conditions which directly or indirectly result in state care and, in addition, to initiate and promote measures of relief and prevention when practically possible.

As the result of an investigation started in 1915, syphilis was found to be a large single factor in causing both insanity and mental enfeeblement. In an effort to meet this situation in a practical way, an attempt was made to assist the physicians throughout the State to recognize and thoroughly treat syphilis with the hope of preventing the late consequences of this disease. A blood-examining service was instituted and made available, without cost to physicians of Wisconsin. Since 1915, over 1,400,000 specimens have been tested for practicing physicians and state institutions. This effort accounts in a great measure for the reduction of late syphilis in Wisconsin. This is shown in the admission rate to state hospitals. In 1915, and previously, the admission rate for paresis was over 12%; since 1924 it has continued at less than 5%. Due to the nationwide program to eradicate syphilis our work has increased over 100% since 1937. Flocculation methods of testing were added to the complement fixation methods previously used. A quantitative test to enable the physician to evaluate the results of antisyphilitic

treatment was also introduced. The legislative act of 1937 requiring marriage applicants to have a blood test before the marriage license could be issued resulted in approximately 95,840 specimens being tested during the last three years. Recently a rapid and reliable test that can be used for emergency purposes at general hospitals was developed and a service to the hospitals in the State providing the same with standardized and tried reagents to perform such tests was inaugurated.

Cerebrospinal fluid examinations are also made without charge for practicing physicians and institutions in Wisconsin. These examinations are helpful not only in syphilis of the central nervous system but also in all other acute and inflammatory conditions of the central nervous system. The demands for this service have also increased approximately 50% during the last three years.

General blood chemistry is another laboratory procedure that the Institute makes available to practicing physicians and hospitals without charge.

All of the above laboratory aids to diagnosis and treatment are intended to assist the physician to combat disease and thereby prevent, in a measure, the occurrence of mental disease.

The medical personnel of the Institute comprises the staff of the Department of Neuropsychiatry in the Medical School of the University. Its five members administer this department in the State of Wisconsin General Hospital and teach nervous and mental diseases to medical students. For this purpose it has available 50 beds in the Bradley Memorial Hospital. During the year ending December, 1939 there were admitted approximately 1225 patients covering a wide range of cases and including practically every known variety of mental and nervous disorder. Owing to the practice of bedside instruction which each medical student gets, this volume and variety offers an unusual opportunity for clinical instruction. It also provides that which few general hospitals offer—training in this specialty for nurses, internes and resident physicians.

Through its outpatient clinic, the Department of Neuropsychiatry offers service in mental hygiene to local agencies as well as social welfare organizations throughout the State. Many disturbances in behavior are referred by courts and private and public social service organizations. Consultation service for diagnosis and recommendations for treatment are available to physicians upon request through the outpatient department.

Consultation service in psychiatry and in neurology is extended to all departments of the State of Wisconsin General Hospital.

The wealth of material, in nervous and mental diseases, offers many problems for clinical investigation and definite contributions have been made, particularly in the field of therapy. Reports have been made on some of these studies; others are pending. Encephalography has been developed to a high state of perfection both as to technical detail and clinical application. Treatment of psychoses by convulsive therapy has been carried out on a large scale at the nearby state hospital. Treatment of epilepsy by some newly reported drugs has been carried out by members of the staff at another state hospital.

STATE HISTORICAL SOCIETY

JOSEPH SCHAFER, SUPERINTENDENT

This Society, organized in the early part of 1849, in the course of its ninety-one years of activity, has attained an enviable position among the educational institutions of the State and nation. The Society maintains in its building on the campus of the University the State Historical Library containing 300,000 volumes and 322,000 pamphlets; also the Historical Museum on the fourth floor of the library building; and an active research and publications staff dealing with Wisconsin history. Its publications include the *Wisconsin Magazine of History,* a quarterly now in its twenty-first volume; *Wisconsin Historical Collections,* of which thirty-one volumes have been issued in addition to a general index of volumes I-XX; the *Proceedings,* separate annual publications con-

taining reports with occasional historical papers; *Bulletins of Information* numbers 1-98; *The Calendar Series* of which three volumes of calendars of the Draper papers have been published; *An Economic History of Wisconsin* by Frederick Merk; *The Wisconsin Domesday Book, General Series,* Volumes I to IV, *Schafer; and Town Studies,* Volume I, *Schafer; Wisconsin History Series, The French Regime in Wisconsin and the Northwest,* Kellogg; *The British Regime in Wisconsin and the Northwest,* Kellogg; *Wisconsin Gold Star List,* Gregory; *Carl Schurz, Militant Liberal* (biography), Schafer.

The State Historical Library is unequaled in the field of Middle Western history and has one of the most important newspaper and periodical collections in the United States. In local history, biography, American travels, etc., it is exceptionally well equipped. The printed colonial records and government documents, state and federal, are equally satisfactory. For the study of upland Virginia, North and South Carolina, and Georgia, as well as Kentucky and Tennessee and the old Northwest, in the Colonial and Revolutionary period, the Draper manuscripts in this library are the richest collection extant. Resources for the study of the slavery question and the Civil War are notable, and there is a vast amount of manuscript material on Western economic history, particularly the trade in lumber and furs. A collection of immigrant letters is forming.

For English history and government, the library has the usual sets of official publications, including the Rolls Series, the Calendars of State Papers, the Blue Books, the reports of the Historical Manuscripts Commission, and other reports of the Records Commission; also the parliamentary proceedings, and the publications of many historical societies. For the study of Dutch history and institutions the Tank collection offers special resources.

This library contains one of the three greatest collections of newspapers in the United States, and it has the fullest files of labor papers to be found anywhere in the country. It is the custodian of the extensive collection of labor and employers' papers, convention proceedings, agreements, etc., secured through the American Bureau of Industrial Research.

WISCONSIN ACADEMY OF SCIENCES, ARTS AND LETTERS

LOYAL DURAND, JR., SECRETARY, ASSISTANT PROFESSOR OF GEOGRAPHY

The Wisconsin Academy of Sciences, Arts and Letters was incorporated by legislative authority on March 16, 1870 for a twofold purpose: (1) to serve as a means of communication between societies and individuals who are engaged in the various fields of research and (2) to publish the results of these investigations. The former object is attained by annual meetings held ordinarily during the spring recess of the University either in Madison or in one of the other educational centers of the State; the latter by the publication of its *Transactions.* In the seventy years of its existence the Academy has published thirty-three volumes of its *Transactions,* besides several *Bulletins.* These publications are sent not only to the active members of the Academy but also, on an exchange basis, to similar societies in all parts of the world. In this manner a valuable library of approximately seven thousand volumes has been secured. It is deposited in the University Library. Its books are loaned on the same terms as those of the latter.

Throughout its existence the Academy has been closely associated with the University in various ways. Several of the leading charter members belonged to the university faculty, and a large percentage of the past and present active members have come from the faculty of the University. Eleven of the twenty-three individuals who have served as presidents of the Academy were members of the university faculty at the time of their election.

The Academy is affiliated with the American Association for the Advancement of Science.

MUSEUMS

The museums of the University are principally illustrative collections for use in connection with the work of instruction in the various departments. Worthy of special mention are the collection of chemical products; the extensive drug collection of the Pharmacy Department; the herbarium, containing a rich array of Wisconsin flowering plants, fleshy fungi, and mosses; the geological museum, containing very extensive collections of minerals, rocks, ores, and fossils, including thin sections; and the valuable collections of the Department of Art History and Criticism, which embraces a series of prints illustrating the development of the graphic arts and a very large number of facsimile and photographic reproductions of paintings and drawings by artists of all periods.

The State Historical Museum which, though not administered by the University, is open to the use of its students for purposes of study and research, makes a specialty of the archaeology and social history of the western Indians and of the western pioneer life, especially in Wisconsin, and is notable for its collections illustrating the early history of the upper Mississippi valley. The art collections contain modern pictures of merit, a collection of Piranesi etchings of classical ruins, and a collection of good prints and reproductions valuable for study.

ARBORETUM AND WILD LIFE REFUGE

G. Wm. Longenecker, Executive Director
Aldo Leopold, Research Director

The University Arboretum and Wildlife Refuge is a tract of over 900 acres of land on the shore of Lake Wingra, on the outskirts of Madison. Its purpose is to serve the University as an outdoor laboratory for the study of plants, birds, mammals, insects, aquatic life, soils, and their interrelation in nature. It is the intention to reconstruct on the Arboretum, examples of the original plant and animal communities native to Wisconsin. These communities will include a large area of prairie, the principal types of forest, and the principal types of marshland. Several outstanding forest types from other places in the country are contemplated. The varied topography and soil lends itself readily to these objects.

The Arboretum is being used for research and outdoor laboratory purposes by students of Botany, Zoology, Entomology, Soils, Landscape Design, Game Management, and Civil Engineering. A faculty committee headed by A. F. Gallistel administers the area.

The Arboretum and Wildlife Refuge was created to preserve and restore at a point near the University, types of primitive Wisconsin landscape and its flora and fauna. It is for the study of plants and animals as individuals and as groups, particular emphasis being made on ecological relationships. Some of the ecological types being preserved and established are: Balsam-Black Spruce, Hard Maple-Beech, Hemlock-Ravine, Jack Pine, Juniper Hillside, Oak-Hickory, Marsh, Prairie, Prairie Margin, Red Pine-White Pine, Tamerack Bog, White Birch, and White Spruce. Land is also set aside for displaying and testing horticultural material and for experimentation with nut bearing plants.

Labor for planting and construction work has been furnished by a National Park Civilian Conservation Corps unit since 1935. Roads and parking areas have been built and a series of foot paths and fire control paths are about completed. To date over 100,000 trees and shrubs have been planted and many of the plant associations are beginning to take form. An entrance has been completed and planted and fourteen acres of shore-bird lagoons constructed.

SUMMARY OF STUDENTS
ACADEMIC
MAY

Division	Men	Women	Total	Men	Women	Total
GRADUATE SCHOOL		Fellows			Scholars	
1. Letters and Science	47	12	59	33	16	49
2. Engineering	6	0	6	6	0	6
3. Agriculture	39	0	39	17	1	18
4. Home Economics	0	2	2	0	3	3
5. School of Education	1	0	1	0	0	0
6. School of Music	0	0	0	0	0	0
7. Total Graduate School (1-6 incl.)	93	14	107	56	20	76
PROFESSIONAL SCHOOLS	Fourth Year			Third Year		
8. Law	1	0	1	110	2	112
9. Medicine	48	1	49	46	5	51
UNDERGRADUATES	Seniors			Juniors		
College of Letters and Science Courses						
10. B.A. Course	353	245	598	297	253	550
11. Ph.B. Course	209	26	235	204	24	228
12. B.S. Course	36	2	38			
13. Chemistry	60	0	60	49	3	52
14. Humanities	0	3	3	0	0	0
15. Classical Humanities	0	2	2	0	1	1
16. Hygiene	0	47	47	0	35	35
17. Medical Technology	0	10	10	0	25	25
18. Pharmacy	27	5	32	24	1	25
19. Premedical	17	2	19	92	11	103
Schools						
20. Commerce—B.A.	118	9	127	81	15	96
21. Commerce—Ph.B.	116	3	119	69	3	72
22. Journalism	38	30	68	51	25	76
23. Music	21	20	41	14	16	30
24. Total Letters and Science (10-23 incl.)	995	404	1,399	881	412	1,293
College of Engineering						
25. Chemical	77	0	77	62	0	62
26. Civil	73	0	73	40	1	41
27. Electrical	92	0	92	74	0	74
28. Mechanical	124	1	125	114	0	114
29. Mining and Metallurgical	30	0	30	20	0	20
30. Total Engineering (25-29 incl.)	396	1	397	310	1	311
College of Agriculture						
31. Long Course—4 year	236	2	238	170	2	172
32. Middle Course—2 year						
33. Home Economics	0	148	148	0	134	134
34. Total Agriculture (31-33 incl.)	236	150	386	170	136	306
School of Education						
35. *Teachers' Certificates only*[2]						
36. Academic Fields	73	135	208	57	116	173
37. Applied Art	3	1	4	1	10	11
38. Art Education	9	36	45	3	18	21
39. Physical Education	21	44	65	24	28	52
40. Total Education (36-39 incl.)	106	216	322	85	172	257
School of Nursing						
41. *Hygiene Course*[2]	*0*	*47*	*47*	*0*	*35*	*35*
42. Graduate Nurse				0	10	10
43. *Total Nursing (41-42 incl.)*[2]	*0*	*47*	*47*	*0*	*45*	*45*
44. **Library School**	0	4	4			
45. Physiotherapy						
46. Total Undergraduates (24, 30, 34, 40, 42, 44, 45)	1,733	775	2,508	1,446	731	2,177
47. Grand Total						
48. Less twice-counted (Law, Medicine, Library School, and Senior Graduates)						
49. Net Grand Total						

[1]Includes 1 Law Fellow (man) tabulated under fourth year.
[2]Figures in italics are not carried into totals because already included in table.

BY CLASSES, COURSES, AND SEX

YEAR, 1940

1, 1940

Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total	Item
Other Graduates									Totals			
660	184	844							740	212	952	1
55	0	55							67	0	67	2
172	8	180							228	9	237	3
0	21	21							0	26	26	4
125	56	181							126	56	182	5
8	0	8							8	0	8	6
1,020	269	1,289							1,169	303	1,472	7
Second Year			First Year			Specials						
134	3	137	170	3	173	2	1	3	417	9	426	8
63	6	69	81	6	87				238	18	256	9
Sophomores			Freshmen			Adult Specials and Unclassified						
395	462	857	491	512	1,003	6	0	6	1,542	1,472	3,014	10
331	41	372	365	44	409	6	0	6	1,115	135	1,250	11
									36	2	38	12
47	2	49	58	4	62				214	9	223	13
0	2	2	0	2	2				0	7	7	14
1	3	4	1	4	5				2	10	12	15
0	50	50	0	72	72				0	204	204	16
0	37	37	0	35	35				0	107	107	17
33	5	38	34	3	37				118	14	132	18
122	11	133	153	22	175	1	0	1	385	46	431	19
									199	24	223	20
									185	6	191	21
									89	55	144	22
14	22	36	16	37	53	2	6	8	67	101	168	23
943	635	1,578	1,118	735	1,853	15	6	21	3952	2,192	6,144	24
88	1	89	99	0	99				326	1	327	25
57	0	57	49	0	49				219	1	220	26
84	0	84	72	0	72				322	0	322	27
154	0	154	162	0	162				554	1	555	28
25	0	25	13	0	13				88	0	88	29
408	1	409	395	0	395				1,509	3	1,512	30
211	0	211	231	3	234	1	0	1	849	7	856	31
1	0	1	5	0	5				6	0	6	32
0	172	172	0	151	151				0	605	605	33
212	172	384	236	154	390	1	0	1	855	612	1,467	34
									112	*152*	*264*	*35*
									130	251	381	36
5	17	22	6	6	12				15	34	49	37
9	17	26	6	35	41				27	106	133	38
25	28	53	76	48	124				146	148	294	39
39	62	101	88	89	177				318	539	857	40
0	*50*	*50*	*0*	*72*	*72*				*0*	*204*	*204*	*41*
0	8	8	0	4	4				0	22	22	42
0	*58*	*58*	*0*	*76*	*76*				*0*	*226*	*226*	*43*
						3	34	37	3	38	41	44
						2	1	3	2	1	3	45
1,602	878	2,480	1,837	982	2,819	21	41	62	6,639	3,407	10,046	46
									8,463	3,737	12,200	47
									229	22	251	48
									8,234	3,715	11,949	49

1939-40

Rank	Men	Women	Total
President, Registrar, Deans	11	1	12
Professors	240	7	247
Associate Professors	125	30	155
Assistant Professors	164	52	216
Lecturers (Small part of time)	39	7	46
Research Associates	12	1	13
Clinical Associates (Small part of time)	4	0	4
Instructors	301	117	418
Graduate Assistants and Assistants (Mainly half time)	398	87	485
Research Assistants (Mainly half time)	150	30	180
Totals	1,444	332	1,776

THE ABOVE TABLE INCLUDES:

a. Members of the instructional and research staffs at Madison.
b. Extension workers throughout the State, including the Milwaukee and other class instruction centers.
c. Administrative officers and librarians having the rank of any member of the instructional staff.
d. The following who were on leave for the entire year:

Rank	Men	Women	Total
Professors	7	1	8
Associate Professors	2	1	3
Assistant Professors	5	1	6
Instructors	0	1	1
Totals	14	4	18

e. The following who were here for only one semester either by appointment or because of resignation or because of leave for one semester:

Rank	Men	Women	Total
Deans	0	1	1
Professors	9	0	9
Associate Professors	1	2	3
Lecturers	3	1	4
Instructors	15	10	25
Graduate Assistants and Assistants	57	10	67
Research Assistants	12	5	17
Totals	97	29	126

THE ABOVE TABLE DOES NOT INCLUDE emeritus members of the faculty:

Rank	Men	Women	Total
President	1	0	1
Deans	3	0	3
Professors	31	2	33
Associate Professors	1	1	2
Assistant Professors	2	3	5
Totals	38	6	44

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