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BULLETIN
of the
UNIVERSITY *of* WISCONSIN

GENERAL ANNOUNCEMENT
OF COURSES
1942-44
(CATALOG)

PUBLISHED AT MADISON, WISCONSIN
AUGUST, 1942

Bulletin of the University of Wisconsin
Serial No. 2608 General Series No. 2392 August, 1942

GENERAL ANNOUNCEMENT OF COURSES

1942-44

(CATALOG)

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PUBLISHED AT MADISON, WISCONSIN
AUGUST, 1942

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CALENDAR

ACADEMIC YEAR 1942-43	ACADEMIC YEAR 1943-44	
		FIRST SEMESTER
Sept. 11, 12	Sept. 10, 11	Examinations for admission
Sept. 14-19	Sept. 13-18	Freshman period (attendance required)
Sept. 16-19	Sept. 15-18	Registration days for other new students
Sept. 17-19	Sept. 16-18	Registration days for old students
Sept. 21	Sept. 20	Instruction begins
Sept. 22	Sept. 21	Examinations for removal of conditions
Oct. 3	Oct. 2	Foreign-language attainment examinations
Nov. 26	Nov. 25	Thanksgiving Day: legal holiday (one day only)
Dec. 12	Dec. 11	Examinations for removal of conditions
Dec. 23	Dec. 23	Christmas recess commences
Jan. 5	Jan. 4	Instruction resumes
Jan. 9	Jan. 8	Foreign-language attainment examinations
Jan. 18-23	Jan. 17-22	Final examinations
		SECOND SEMESTER
Jan. 25, 26	Jan. 24, 25	Examinations for admission
Jan. 26	Jan. 25	Registration day for new and reentered students
Jan. 27	Jan. 26	Instruction begins
Jan. 30	Jan. 29	Placement examinations for new students
Feb. 13	Feb. 12	Examinations for removal of conditions
April 15	April 13	Spring recess commences
April 19	April 17	Instruction resumes
April 24	April 22	Examinations for removal of conditions
May 8	May 6	Foreign-language attainment examinations
May 19-25	May 17-23	Final examinations
May 29	May 27	Commencement Day

SUMMER SESSION

The University will provide a full program of studies throughout the summer and the regular school-year. A complete summer program for freshmen, upperclassmen and graduate students will be offered in all colleges of the University. Announcement of the opening and closing dates of the summer term will be made later, and a summer term bulletin will be issued.

THE REGENTS OF THE UNIVERSITY

MICHAEL J. CLEARY, Milwaukee.....1946
HERMAN L. EKERN, Madison.....1943
A. J. GLOVER, Fort Atkinson.....1949
WALTER HODGKINS, Ashland.....1950
A. T. HOLMES, La Crosse.....1947
LEONARD J. KLECZKA, Milwaukee.....1944
FRANK J. SENSENBRENNER, Neenah.....1948
MRS. BARBARA VERGERONT, Viroqua.....1942
A. MATT WERNER, Sheboygan.....1945
JOHN CALLAHAN, Madison.....ex-officio

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MRS. BARBARA VERGERONT, Vice-President
JOHN M. SMITH, State Treasurer, ex-officio Treasurer
M. E. MCCAFFREY, Secretary

OFFICERS OF THE UNIVERSITY

CLARENCE ADDISON DYKSTRA, President
ALFRED W. PETERSON, Comptroller

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Appointed by the Regents

GEORGE P. HAMBRECHT.....1942
A. D. GILLETT, Eveleth, Minnesota.....1945

Appointed by the Alumni

MRS. GEORGE LINES, Milwaukee.....1946
RALPH BALLIETTE, Platteville.....1944
ROBERT K. COLE, Whitewater.....1944
MRS. CLARA A. JOHNSON, Madison.....1945
MYRON T. HARSHAW, Chicago.....1943
BASIL I. PETERSON, Madison.....1943

Appointed by the Governor

MRS. ANNETTE ROBERTS, Milwaukee.....1935
MRS. JULIA M. SCHNETZ, Racine.....1941
DR. E. L. SCHROEDER, Shawano.....1942

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Ineva Meyer, *Assistant to the Dean*

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Alden W. White, *Assistant Secretary of the Faculty*

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Curtis Merriman, *Registrar*
Georgia M. Martin, *Assistant Registrar*

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F. O. Holt, *Director of School Relations*
V. A. C. Henmon, *Director of Educational Guidance*
Alanson H. Edgerton, *Director of Vocational Guidance*
F. D. Cheydleur, *Director of Placement and Attainment Examinations*

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Frederick E. Volk, *Librarian, Engineering Library*
Philip G. Marshall, *Librarian, Law Library*
Gladys Ramsey, *Librarian, Medical Library*

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DEPARTMENT OF STUDENT HEALTH

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PHYSICAL EDUCATION

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Blanche M. Trilling, *Director of Physical Education—Women*

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STUDENT EMPLOYMENT BUREAU—Miss Marion E. Tormey, *Interviewer*
RESIDENCE HALLS—Donald L. Halverson, *Director*
WISCONSIN UNION—Porter Butts, *House Director*
RADIO STATION WHA—Harold B. McCarty, *Director*

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Harry Glicksman, *Junior Dean*
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Course in Chemistry—J. Howard Mathews, *Director*
Course in Classical Humanities—Robert L. Reynolds, *Chairman*
Course in Humanities—Robert L. Reynolds, *Chairman*

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SCHOOL OF JOURNALISM—Grant M. Hyde, *Director*
LIBRARY SCHOOL—G. C. Allez, *Director*
SCHOOL OF MUSIC—Carl E. Bricken, *Director*
SCHOOL OF PHARMACY—Arthur H. Uhl, *Director*

COLLEGE OF ENGINEERING

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Adam V. Millar, *Assistant Dean*

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Course in Civil Engineering—Leslie F. Van Hagan, *Chairman*
Course in Electrical Engineering—James W. Watson, *Chairman*
Course in Mechanical Engineering—Gustus L. Larson, *Chairman*
Course in Mining and Metallurgy—Joseph F. Oesterle, *Chairman*

COLLEGE OF AGRICULTURE

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Vincent E. Kivlin, *Assistant Dean*

Course in Home Economics—Frances Zuill, *Director*

LAW SCHOOL—Lloyd K. Garrison, *Dean*

MEDICAL SCHOOL

William S. Middleton, *Dean (on leave)*
Walter J. Meek, *Acting Dean*

SCHOOL OF NURSING—Christina C. Murray, *Director*

SCHOOL OF EDUCATION—C. J. Anderson, *Dean*

Courses in Art Education and in Applied Art—William H. Varnum, *Chairman*

Course in Physical Education and Athletic Coaching for Men
Robert Nohr, *Acting Chairman*

Course in Physical Education for Women
Blanche M. Trilling, *Chairman*

University High School—Glen G. Eye, *Principal*

GRADUATE SCHOOL—Edwin B. Fred, *Dean*
Harold W. Stoke, *Assistant Dean*

EXTENSION DIVISION

Frank O. Holt, *Dean*

SUMMER SESSION—Scott H. Goodnight, *Dean*

BUSINESS

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HENRY M. SCHMELZER, *Supervisor of Procurement*
CLARENCE W. VAUGHN, *Personnel Officer*
DONALD L. HALVERSON, *Director of Residence Halls*
WILLIAM H. NEGLEY, *University Editor*

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GUSTUS L. LARSON, *Consulting Mechanical Engineer*
WILLIAM S. KINNE, *Consulting Structural Engineer*
JOHN R. PRICE, *Consulting Electrical 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, residence halls, 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 landscape area surrounding the university buildings offers ample opportunity for future development of the physical plant.

THE 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 publishes and distributes the results of scholarly research sponsored by the University and other works regarded by the Committee on Publications as worthy of the Press imprint. It is also in charge of the distribution of the University of Wisconsin Studies, issued before the establishment of the Press in 1937, and of monographic numbers of the Bulletin.

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 Experimental Station, bulletins and annual reports; and from the Agricultural Extension Office, circulars dealing with farming and homemaking.

STUDENT EXPENSE

UNIVERSITY CHARGES

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

Semester Fees for Residents and Non-Residents

	Residents	Non-Residents
All Colleges and Schools except Law and Medicine	$48.00	$148.00
Law School	55.00	155.00
Medical School		
1st, 2nd, and 3rd years	112.50	212.50
4th year	75.00	175.00

These fees include membership in the Memorial Union, Infirmary hospitalization privileges and a laboratory-library charge.

Exceptions and Remissions. The following exceptions to and remissions of the above semester fees are established:

(a) The Memorial Union portion of the semester fee will be remitted for life members of the Memorial Union.

(b) Students, except those registered in Medical School, who elect five credits or less for the semester may pay a fee of $6.00 per credit for residents and $18 per credit for non-residents. Infirmary and union privileges are excluded. No late registration fee will be charged.

(c) Adults may 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. Infirmary and Union privileges are excluded. No late registration fee will be charged.

(d) Students entering after half a semester has elapsed shall pay half of the semester fees. No late registration fee will be charged.

(e) When any candidate for a Ph. D. degree holding an official University appointment shall have paid to the University as a graduate student seven semester or summer session fees, he is permitted to enroll on payment of a semester fee of $15 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.

(f) Graduate students who are members of the teaching and research staff of the University, fellows and scholars, honorary fellows and honorary scholars, 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 entitled to *remission of the non-resident tuition fee.*

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.

(g) Honorary fellows and honorary scholars are entitled to remission of $39.50 of the semester fee and to remission of the non-resident tuition fee.

(h) Candidates for the master's or doctor's degree who are not enrolled at the time they present themselves for examination are required to pay a registration fee of $10.

(i) Residents of other states may be entitled to a reduction of the regular non-resident tuition of $100 per semester in accordance with the provisions of paragraph V under Non-Resident Tuition below.

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

I. 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 is not charged the non-resident tuition.

II. 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 is not charged the non-resident tuition.

III. 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 is not charged the non-resident tuition.

IV. 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 is not charged the non-resident tuition.

V. The Regents of the University, acting under the provisions of Section 36.16 (C), Laws of Wisconsin, 1937, 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 School students (a) enter the University of Wisconsin from accredited institutions with a scholastic average of two or more grade-points per credit on all 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. A fine of $3.00 is charged all students paying fees after the first day of instruction. The first day of instruction shall be the beginning of regular classes for the semester. An additional fine of $3.00 will be assessed students who pay fees later than three weeks from the first day of instruction. Students who fail to pay the fees assessed when due will be barred from classes on orders of the Registrar.

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 second week, 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%.

REFUNDS. The cashier, upon recommendation of the Registrar, is authorized to make refunds of semester tuition and fees on the following basis to students withdrawing from the University: withdrawal before and during the first week, 100%; during the second week, 80%; during the third and fourth weeks, 60%; during the fifth and sixth weeks, 40%; during the seventh and eighth weeks, 20%; and after the eighth week, no refund.

Students who withdraw to serve in the armed forces are entitled to a full refund of their semester fees.

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.

WISCONSIN HIGH SCHOOL. In the Wisconsin High School tuition for residents is $30 per year for the seventh and eighth grades and $40 per year for the ninth to twelfth grades, and for non-residents tuition is $45 per year. Fees are payable in three installments.

SUMMARY OF EXPENSES

Although it is difficult to give a definite set of figures, it is reliably estimated that student expenses average approximately $700 per academic year, exclusive of clothing, transportation to and from Madison, and non-resident tuition. Many students spend more than $700, but others are able to manage for as little as $475 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 ($225 to $275), 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, $12 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 many 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 $225 to $275 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, which entitle the student to remission of $39.50 of their semester fee 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 year.

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.

SIGURD L. ODEGARD MEMORIAL SCHOLARSHIP—Four scholarships for graduates of Lincoln county.

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 SCHOLARSHIP—$25 awarded in the second semester to the senior woman in the School of Education 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.

WISCONSIN ALUMNI RESEARCH FOUNDATION UNDERGRADUATE APPRENTICESHIPS—For seniors in the natural science fields. For 1942-43 there will be 20 awards in the amount of $250 each.

WISCONSIN UNION SCHOLARSHIPS—Available from proceeds of student branch.

WISCONSIN WOMEN'S ATHLETIC ASSOCIATION SCHOLARSHIPS—Two scholarships of $50 each awarded annually to undergradute 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 arrangements 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.

KATHERINE ALLEN LOAN FUND—For Graduate students.

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 MELAINE 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 on Lake Mendota away from the city, yet only a short distance from class and lecture, in a beautiful natural setting. The location has every physical advantage: The Lake offers many opportunities for summer and winter recreation; the university intramural playing fields are adjacent; there is the privacy of a little community, with inclusion in the University as a whole. The halls are modern and fireroof, the student rooms attractive and well furnished;

the undergraduates live under the supervision of a University-appointed house fellow. Recreation space within the halls is abundant, and conditions under which the residents live and study are wholesome and healthy.

Tripp and Adams halls, built in quadrangular form around common courts accommodate roughly five hundred men in single and double rooms. (These units have been withdrawn from general use for 1942-43, and a naval training unit is occupying them.)

To the west of the Van Hise halls are the eight Kronshage houses, each accommodating eighty men, in double rooms. Meals are served cafeteria-style in the Kronshage dining units. These accommodations are available at $310-$345 a year a person.

In all units bed linen is furnished and laundered by the University; all rooms are fully furnished; residents supply their own towels and provide for their personal laundry.

All residents belong to the men's halls 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.

Halls for Women. Chadbourne and Barnard halls are adjacently located at the foot of the Hill, in a beautiful corner of the campus. Surrounded by lawn and shade, and convenient to libraries and classes, they have for years been popular student homes. Each accommodates approximately a hundred fifty women, and there are lounges, libraries, fudge kitchens, and other pleasurable facilities.

Single rooms with board are $420 a year. Two-room suites with board also cost $420 a year. Double rooms with board are $390 a year a person.

Elizabeth Waters Hall, the University's newest residence for women, is incomparably situated on the hillside east of Tripp and Adams and overlooking a wooded slope and the Lake. It accommodates 490 women, in double rooms which are homelike, convenient, and attractively furnished. Two spacious dining rooms open on a terrace facing the Lake; there are lounges, a library, a music room, numerous fudge kitchens and small laundries and many occasional spaces for reading and informal conversation. The cost is $430 a year a person.

Each of these halls has its head resident, a university faculty woman. Student house organizations govern the halls and cooperate with the head residents in stimulating interest in many valuable opportunities of college life; these organizations charge nominal dues to meet a portion of the cost of their social and cultural programs. A student counseling system has been initiated in the halls which is a rich and helpful addition to the many services available to residents.

General Information Concerning All University Halls. To reserve a room for the academic year, mail a $10 deposit (remittances should be made payable to the Division of Residence Halls), together with an application blank carefully filled out. Applications are received beginning October 1. Deposits are refunded at the end of the period of residence. Applications are accepted for the second semester as well as for the first. All rooms are rented with board; charges for room and board are payable in advance by the quarter.

The rates have been set with as clear a prediction of future costs as was possible; the halls are operated on an essentially cost basis, and the University reserves the right to make adjustments during the year, if necessary.

Assignments to freshmen are made beginning May 1, to upperclassmen beginning July 15. First preference is given to Wisconsin residents. Those applying for accommodations in the residence halls should realize that rooms are rented for the entire academic year, and one may not leave at the end of the first semester unless a satisfactory substitute is provided. Those planning to move into a fraternity or sorority house the second semester are urged not to apply for a room in the university halls.

The halls open the day before the beginning of Freshman Period in the fall and close the day after final examinations in the spring. They are closed during the Christmas recess.

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 to the Division of Residence Halls.

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

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 cost basis and under the supervision of trained dietitians. The combined dining rooms in the Union accommodate 3,500 students a day; the cafeteria, the largest room, serves three meals daily, featuring a low cost student special; 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 until 2:30 p. m. and for men and women after 2:30. The Paul Bunyan room is open at all times for men and women, with self-service from the Rathskeller bar; 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 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 about $275. 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 $190 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 the Assistant Dean, College of Agriculture, Madison, Wisconsin.

COOPERATIVE HOUSES FOR WOMEN. Tabard Inn and Andersen House, the 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; Andersen House, founded in 1921, is located 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 home-like conditions at the lowest cost consistent with good living. Each resident works on an average of three hours a week. For further information address the office of the Dean of Women. Cost of room and board for the year in Tabard Inn is $289; in Andersen House $298.

DIVISION OF RESIDENCE HALLS

Application for Room for the Academic Year 19.....-19..... 1st Semester .....
2nd Semester .....

Name ..... Date of Application.....

Home Address ..... Telephone Number .....

Madison Address ..... Telephone Number .....

Name and Address of Parent or Guardian .....

.....

If either Parent or Guardian is a Graduate of the University of Wisconsin, give name and date of graduation. Choice of Room (give Hall or House and Type of Room):

1. ..... 3. .....

2. ..... 4. .....

Name of Roommate .....

(The person you name should also make a written request for you as a roommate. If no one is named, it is assumed that you will accept the person assigned by the Division of Residence Halls.)

Classification at time of taking residence: Freshman..... Sophomore.....

Junior..... Senior..... Graduate.....

Course which you plan to take:.....

* * * * * *

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

Birth Date..... Race..... Nationality.....

Religion or Denomination..... Activity Interest.....

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, should 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 residence halls for women, and 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. Women students may not live in houses where men are accepted as roomers.

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 University except for the university dormitories, cooperative houses and special interest houses, all houses listed meet established standards and are believed to be suitable homes for women students. Approved houses 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. Houses offering board usually require a year agreement. When engaging a room students should ascertain 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. Such permission must be obtained *before* the student reserves a room.

A new service for graduate women was inaugurated in 1940 by the office of the Dean of Women. In addition to the usual list of rooms in private homes, several houses with capacities ranging from four to eighteen have been reserved for graduate women exclusively. Residents are expected to remain for the year, unless arrangements to rent for one semester is made at the outset. 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. Two of these houses offer board. The convenience of proximity to the campus, the Memorial Union, and the cooperative dining clubs, as well as the social advantages of group living is appreciated 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 undergraduate dormitories and cooperative houses. Rooms in private houses are rented by the semester except in houses where board is provided. 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 stu-

dent 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.

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 private 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; lounges; barber shop; 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 dance recitals; a small laboratory theater seating 168 for experimental drama, meetings, musicales, motion pictures, 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 group gatherings and recreational activity 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, square dancing, 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 students, faculty and alumni members.

The central governing body of The Wisconsin Union is the Union Council, consisting of nine 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, of which each student is automatically a member, has been organized to discharge the administrative and legislative functions of student self-government.

The Association is governed by a board of directors composed of 16 members, five of them women, elected each spring during general campus elections. The president of the board is president of the Wisconsin Student Association.

Through various committees and its two administrative departments, the Women's Self-Government Association and the House Presidents' Council, the Student Board carries on its program based on broad powers granted in its constitution. These powers include supervision and regulation of student extra-curricular activities; authorization and chartering of administrative bodies necessary to meet student needs; formulation of regulations for student conduct and establishment of agencies necessary for their enforcement.

Under the last of these powers the Student Board, with faculty and regent approval, has set up an independent Student Court, composed of a chief justice and five associate justices. The Court has jurisdiction over infractions of student conduct, such as cheating, cribbing, plagiarism, and petty thievery, as well as violations of student board rules and traffic regulations.

The Student Board program includes the sponsoring, financing, or supervision of such all-campus projects as an annual Work Day, Freshman Orientation, Parents' Weekend, campus elections, a low-cost dance series, Campus Community Chest charity drives, a scholarship fund, a broad public relations program with the state legislature, alumni groups and high-school students, and an annual Student Government Emphasis Week. Special committees work for improved student working conditions, and deal with housing problems under an integrated Economic Welfare program. To cope with the diversified projects and problems arising from the war, the board has established an eight-man Student War Council, charged with coordination of all campus war activities. This council, through an appointed coordinator, assists in the war work sponsored by the Wisconsin Elective Service, the Wisconsin Union, military, forensic, and other organizations.

Strictly administrative problems affecting the various campus living groups are turned over, respectively, to the Women's Self-Government Association and the House Presidents' Council. The latter, through an administrative committee composed of a chairman and the heads of the fraternity, residence halls, and lodging house groups, provides a medium for the discussion of common problems for the three groups.

In addition the Student Board appoints student representatives to the University Co-op Board, names several members to the Forensic Board, and has gained ex-officio student representation on the faculty Student Life and Interest Committee.

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 four or more 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 president, vice president and secretary of the W.S.G.A. who are the officers of the Committee and of the Association; the members of the Coordinating Committee (chairmen of lodging house, dormitory and sorority house presidents' groups); chairman of the Judicial Committee; chairman of the Women's Affairs Committee; chairman of Orientation; and chairman of temporary groups serving only for the periods during which their committees are active. The Admistrative 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 the Coordinating Committee elected from among the members of the Council, forms a larger voting body to legislate on all house rules and problems.

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 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 offices of the Dean of Women concerning rooms and are invited at all times to make use of the facilities of this office. A vocational advisory service and placement bureau are also available in the office.

Many other personnel and guidance services are available to men and women who desire to improve their total adjustment to the university community. The academic deans, advisers, special counselors, Bureau of Vocational Guidance, Division of Social Education, Employment Office, Health Department, and other persons and agencies are all available to students needing assistance in the scholastic, social, vocational and personal areas of their life and work.

In order to coordinate and promote these services a Personnel Council has been established, with the Assistant Dean of Men serving as executive secretary. The latter is particularly anxious to aid students who do not know how to make the direct contacts for information and guidance concerning vocational interest and aptitude testing, study habits and reading instruction, social adjustments, extra-curricular participation, and the like. Of particular importance is the special military service which is centralized in the office of the Personnel Council. Students who wish to point their academic programs toward military and industrial service may receive helpful council in this office.

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" activites. 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; they may be members of the band, orchestra or glee club; and those who are successful in their academic work during their first semester may, in their second semester, participate in general student activities. The eligibility rules and regulations governing social life are published in full in the time tables 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, male freshmen, in limited numbers, may be invited to live in the fraternity 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 funds. This staff is responsible for furnishing medical care to individuals primarily in 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 offices 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 University Bands consist of two hundred men divided into a Concert Band, a First Regimental Band, and a Freshman Band. The Concert Band devotes its efforts to the study and performance of the higher forms of music. The First Regimental Band and Freshman Band 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. Freshmen and sophomores taking band are not required to take military science. Members of the bands who remain for duty at Commencement receive a stipend of fifteen dollars for freshmen and sophomores and thirty dollars for others. Members of the University Bands may earn one credit beginning with the sophomore year.

The University Chorus, an organization of about 200 voices, studies and performs masterpieces of choral literature. Membership is on a competitive basis and is open to any student in the University; try-outs are held at the beginning of each semester. Members selected register for Music 86, and beginning with the sophomore year may earn one credit hour per semester.

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 organiza-

tions 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; 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 respectively and containing material of professional interest; and the *Badger,* a comprehensive and elaborate annual issued under the auspices of the senior class. With the exception of the *Badger,* all are published by the Campus Publishing Company, a plant owned and operated for this purpose. 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 University 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

METHOD 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 24).
2. By passing entrance examinations (see page 26).
3. By qualifying as an adult special student (see page 26).
4. By submitting evidence of studies successfully pursued in another institution of higher learning (see page 27).

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 27). 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 Monday 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 guarantee 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 1st.

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. PREAMBLE

University studies assume that the entering student has (a) competence in oral and written expression; (b) efficient reading and study skills; (c) for some courses, the mathematical skills ordinarily gained in high-school algebra and geometry; (d) broad preparation in the fields of study which the University requires. (The first year of university work requires studies chosen largely from the fields of English, History, Science, Mathematics, Foreign Languages.)

The requirements for admission to the University are designed to provide (a) adequate preparation for studies required in the University, and (b) a desirable continuity in the student's educational experience.

DEFINITIONS. (a) 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 the entire school year, a unit may be constructed by adding a semester each of two related subjects. (b) *Mathematical preparation* consists of a minimum of one unit of algebra and one unit of plane geometry. Students who present these units will be classified as entering *with mathematical preparation,* and those who do not present these units will be classified as entering *without mathematical preparation.*

II. ADMISSION—GENERAL PATTERN

1. 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 requirements and bearing the principal's recommendation of the candidate's fitness for admission to college. In general the principal is advised not to give this recommendation to a student whose record places him in the lowest quarter of the graduating class.

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

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

schools which maintain a senior division shall present twelve units from this division, and the remaining four from the last year of the junior high school. Three of these sixteen units must be in English or English and Speech, and at least six must be presented in groups of either two units from each of three of the following fields or three units from each of two: a foreign language, history and the social sciences, mathematics, natural sciences.

3. Mathematical preparation is essential for successful work in many fields of study in which the University gives instruction. Students are, therefore, strongly advised to enter with mathematical preparation. It is requisite for advanced work in most of the fields and is, therefore, required of all students who choose to major or specialize in such a field. The University does not give residence courses in elementary mathematics; hence, a deficiency in high-school mathematics can be removed only by taking entrance examinations, or by returning to high school, or by taking correspondence courses from the Extension Division.

WITH MATHEMATICAL PREPARATION AN ADMITTED STUDENT MAY ENROLL IN

(a) The College of Letters and Science. He may register in any course or field of study to which freshmen are eligible, and may exercise full freedom of choice among the college majors and fields of specialization.

(b) The College of Engineering. For full admission to this college 1½ units of algebra and 1 unit of plane geometry are required. Students who present the minimum requirement for mathematical preparation will be required to complete one semester of college algebra without credit before beginning the regular courses in engineering mathematics.

(c) The College of Agriculture. A student wishing to specialize in technical Agricultural Engineering should present the same units as are required in the College of Engineering.

(d) The School of Education.

WITHOUT MATHEMATICAL PREPARATION AN ADMITTED STUDENT MAY ENROLL IN

(a) The College of Letters and Science, and he may take some work in most of the departments; and by carefully exercising his options he may take the courses in journalism or music or he may major in Hispanic studies, art history and criticism, the classics, comparative literature, English, foreign languages, geography, history philosophy, or speech. However, no classes in astronomy, mathematics or physics will be open to him. He may not enroll in the course in chemistry, medical technology, nursing, pharmacy nor may he major or specialize in American institutions, bacteriology, botany, chemistry, commerce, economics, geology, humanities, international relations, mathematics, physics, pre-medicine, political science, psychology, sociology, or zoology.

(b) The College of Agriculture, including Home Economics, except technical Agricultural Engineering. However, the deficiency in mathematical preparation must be made up without college credit before he enters the junior year.

(c) The School of Education. 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, shall comply with the requirements of the College of Letters and Science. No student may graduate from the School of Education with a major or minor in any of the fields which require mathematical preparation (see above) until the deficiency has been removed. By carefully exercising his options a student may complete the courses in Applied Art, Art Education, or Physical Education for Men. However, the completion of the course in Physical Education for Women requires mathematical preparation.

III. ADMISSION—SPECIAL CASES

1. Graduates of Wisconsin high schools who are deficient in the nine units stipulated in Section II, 2, may be admitted to the University provided they stand in the upper ten per cent of the graduating class of their high schools and the deficiency does not exceed three out of the nine units. They will, however, be classified as without mathematical preparation unless they present the requirements for this classification.

2. Attention is called to the University regulations whereby superior students with thorough high-school training in the academic fields may absolve requirements of elementary university courses by examination.

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, 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 bachelors 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. However, students who enlist in any of the enlisted reserve plans, such as Navy V1, may apply for admission at the end of the sophomore year. 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
Courses 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 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 21) 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 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 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 excepted in lieu of passing these entrance 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 reqired 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.

No 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
History of Science
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
Wildlife Management

B. Home Economics Division

Clothing and Textiles
Foods, Nutrition and Administration
Related Art

LAW SCHOOL

MEDICAL SCHOOL

Anatomy
Hygiene
Medical Bacteriology
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

Education
Art Education and Applied Art
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 other 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 Universtiy.

DEGREES

TITLES

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 (Applied Mathematics and Mechanics)
BACHELOR OF SCIENCE (Agriculture)
BACHELOR OF SCIENCE (Agriculture and Education)
BACHELOR OF SCIENCE (Applied Art)
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 ration 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.

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 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.

WOMEN. Women students are required to take the equivalent of two hours of physical education a week for four semesters. 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 are physically unfit, as certified by the Department of Student Health, may be exempt from physical education upon application to the director of the gymnasium. 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 which can be purchased in Madison at a cost of about $2.50. Additional special costumes are required for correctives, golf, riding, archery, skiing and swimming.

MEN. Male undergraduates are required to take two hours of physical education per week during each semester of their residence at the University.

Juniors and seniors enrolled in the College of Engineering or in an advanced course in military science, and students who are certified as physically unfit by the Department of Student Health are exempt from physical education. Exemption is also provided for those male students who, from semester to semester, demonstrate their physical fitness and for students who are carrying both Band and Military Science. Students who are ineligible for military science, but not certified as physically unfit for physical education will meet the physical education requirement only during the freshman and sophomore years, unless accepted by a Selective Service board, in which case the requirement will revive for the remainder of their undergraduate residence at the University. All applications for exemption must be made to the director of required physical education.

The satisfactory completion of the required work is determined on the basis of physical fitness, motor proficiency, and knowledge of the principles of efficient living. Students must meet a minimum standard of physical fitness and motor proficiency before they are permitted to elect activities of their own choice.

Students will provide themselves with suitable clothing for indoor and outdoor activities—indoor: regulation white sleeveless shirt with "Wisconsin" across the front, and white running pants with cardinal trim, at a cost of $1.50; outdoor: a plain gray suit of canton flannel consisting of shirt and long trousers, at a cost of about $3.25. In addition each man will provide a supporter, wool socks and rubber soled shoes.

MEDICAL AND PHYSICAL EXAMINATIONS

The organic condition, stage of physical development, and degree of motor efficiency attained by each 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 freshman squads, intramural teams, and intercollegiate athletic squads must secure permission of the Departments of Student Health and Physical Education before reporting for participation.

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 the old and two from the new dormitories, and two from the independent groups, advise with the department in all matters pertaining to intermural 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 activites 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, Badminton, Basketball, Bowling, Dolphin (the swimming club), Orchesis (the dance club), Tennis. 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 Freshman Band. The First Regimental Band and Freshman Band 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 other bands who remain for duty at Commencement receive a stipend of fifteen dollars for freshmen and sophomores, and thirty dollars for others.

Freshmen and sophomores who take band are not required to take military science. 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, 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.

Instruction within the department is conducted by officers of the Army of the United States 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.

All male freshmen and sophomores are required to take military science, subject to the provisions outlined on page 32 of the General Information bulletin. No academic credit is given for the basic course, but two academic credits are given 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 5 hours each week. Upon satisfactory completion of the advanced course, including the prescribed training at a special Army Service School, graduates thereof, who are 18 years of age, are offered commissions as Second Lieutenants in the appropriate branch of the Officers' Reserve Corps, Army of the United States.

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 Universiy. 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.

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 $30 a month while attending the service school. Transportation to and from the service school as well as subsistence and quarters are furnished by the Government. Uniforms and equipment are furnished by the Government.

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 the University in 1904. Pershing Rifles is a national honorary fraternity of 27 chapters in which basic course students are eligible for membership. Company C, 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

MARK H. INGRAHAM, DEAN

FACULTY

ADKINS, HOMER BURTON, *Ph.D.*, Professor of Chemistry
ADLER, FELIX, *Ph.D.*, Visiting Assistant Professor of Physics
ADOLFSON, LORENTZ HENNING, *Ph.D.*, Assistant Professor of Political Science
AGARD, WALTER RAYMOND, *B.Litt.*, Professor of Greek
ALBERSON, MRS. HAZEL STEWART, *Ph.D.*, Instructor in Comparative Literature
ALLEN, CHARLES ELMER, *Ph.D., Sc.D.*, Professor of Botany
ALLEN, FLORENCE ELIZA, *Ph.D.*, Instructor in Mathematics
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
BEARD, WILLIAM, *Ph.D.*, Assistant Professor of Political Science
BEATTY, ARTHUR, *Ph.D.*, Emeritus Professor of English
BECKER, HOWARD, *Ph.D.*, Professor of Sociology
BEEMAN, WILLIAM WALDRON, *Ph.D.*, Instructor in Physics
BERKOWITZ, HYMAN CHONON, *Ph.D.*, Professor of Spanish
BERNSTEIN, DOROTHY LEWIS, *Ph.D.*, Instructor in Mathematics
BILSTAD, NELLIE MAE, *Ph.D.*, Assistant Professor of Zoology
BÖGHOLT, CARL MÖLLER, *Ph.D.*, Associate Professor of Philosophy
BORCHERS, GLADYS LOUISE, *Ph.D.*, Associate Professor of Speech
BOTTKE, KARL GEORGE, *Ph.D.*, Instructor in French
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
BRILLOUIN, LEON NICHOLAS, Visiting Professor of Physics
BROGDEN, WILFRED JOHN, *Ph.D.*, Assistant Professor of Psychology
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; Assistant Theater Director
BURKHARDT, FREDERICK HENRY, *Ph.D.*, Assistant Professor of Philosophy
BURLEIGH, CECIL EDWARD, *D.M.*, Professor of Music
BUSSE, LOUIS WILLIAM, *Ph.D.*, Assistant Professor of Pharmacy
CAMERON, NORMAN ALEXANDER, *Ph.D., M.D.*, Professor of Psychology
CARPENTER, MRS. LOUISE LOCKWOOD, *B.M.*, Associate Professor of Music
CASALDUERO, JUAQUÍN, *Ph.D.*, Visiting Associate Professor of Spanish
CASSIDY, FREDERIC GOMES, *Ph.D.*, Assistant Professor of English
CHEYDLEUR, FREDERICK DANIEL, *Ph.D.*, Professor of French; Director of Placement and Attainment Examinations
CHURCHILL, RUEL VANCE, *Ph.D.*, Visiting Lecturer in Mathematics
CLARK, HARRY HAYDEN, *M.A.*, Professor of English
CLARKE, HELEN ISABEL, *M.A.*, Assistant Professor of Sociology

CLAUS, PEARL ELIZABETH, *Ph.D.*, 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
CURTI, MERLE, *Ph.D.*, Professor of History
CURTIS, JOHN THOMAS, *Ph.D.*, Assistant Professor of Botany
DANIELS, FARRINGTON, *Ph.D.*, Professor of Chemistry
DENNISTON, ROLLIN HENRY, *Ph.D.*, Assistant Professor of Botany
DEVINNEY, LELAND COLLINS, *Ph.D.*, Associate Professor of Sociology and Anthropology
DIETRICH, JOHN ERB., *M.A.*, Lecturer in Speech
DILLON, MYLES, *Ph.D.*, Professor of Gaelic and Irish History and Literature
DORAN, MADELEINE, *Ph.D.*, Assistant Professor of English
DOREMUS, ROBERT BARNARD, *Ph.D.*, Instructor in English
DUGGAR, BENJAMIN MINGE, *Ph.D.*, Professor of Physiological and Applied Botany
DUNKER, MELVIN FREDERICK WILLIAM, *Ph.D.*, Assistant Professor of Pharmacy
DURAND, LOYAL, JR., *Ph.D.*, Assistant Professor of Geography
DVORAK, RAYMOND FRANCIS, *B.M.*, Associate Professor of Music
EARLEY, JAMES STAINFORTH, *Ph.D.*, Associate Professor of Economics
EASTMAN, IRENE BELLE, *B.M.*, Assistant Professor of Music
EASUM, CHESTER VERNE, *Ph.D.*, Professor of History
EBENSTEIN, WILLIAM, *Ph.D., S.J.D.*, Assistant Professor of Political Science
EBLING, WALTER HENRY, *Ph.D.*, Assistant Professor of Agricultural Economics
ECCLES, MARK, *Ph.D.*, Associate Professor of English
EDSON CHARLES FARWELL, JR., *Ph.D.*, Assistant Professor of History
EISENHART, CHURCHILL, *Ph.D.*, Assistant Professor of Mathematics
ELLSWORTH, PAUL THEODORE, Professor of Economics
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
EVANS, HERBERT PULSE, *Ph.D.*, Professor of Mathematics
EVANS, RICHARD IRVING, *Ph.D.*, Assistant Professor of Botany
EWBANK, HENRY LEE, *Ph.D.*, Professor of Speech
FARNER, DONALD SANKEY, *Ph.D.*, Instructor of Zoology
FASSETT, NORMAN CARTER, *Ph.D.*, Associate Professor of Botany and Curator of the Herbarium
FELLOWS, DONALD ROSS, *M.A.*, Associate Professor of Business Administration
FEYNMAN, RICHARD P., *Ph.D.*, Visiting Assistant Professor of Physics
FINCH, VERNOR CLIFFORD, *Ph.D.*, Professor of Geography
FISCHER, RICHARD, *Ph.D.*, Emeritus Professor of Chemistry
FISK, EMMA LUELLA, *Ph.D.*, Associate Professor of Botany
FOSS, ROBERT HENRY, *M.A.*, Instructor in Journalism; Director of Publicity
FOX, PHILIP GORDER, *M.A.*, Associate Professor of Business Administration
FRIES, HORACE SNYDER, *Ph.D.*, Assistant Professor of Philosophy
FULCHER, PAUL MILTON, *Ph.D.*, Associate Professor of English
GALPIN, ALFRED MAURICE, *Ph.D.*, Instructor in French and Italian
GARNETT, ARTHUR CAMPBELL, *M.A., Litt.D.*, Associate Professor of Philosophy
GAUMNITZ, ERWIN ALFRED, *Ph.D.*, Associate Professor of Insurance
GAUS, JOHN MERRIMAN, *Ph.D.*, Professor of Political Science
GERTH, HANS HEINRICH, *Ph.D.*, Assistant Professor of Sociology
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.*, Emeritus Professor of Sociology
GLAESER, MARTIN GUSTAV, *Ph.D.*, Professor of Economics and Commerce

GLICKSMAN, HARRY, *Ph.D., LL.B.*, Lecturer in English; Junior Dean of the College of Letters and Science
GOHEEN, HARRY EARL, *Ph.D.*, Instructor in Mathematics, College of Letters and Science and Extension Division
GORDON, EDGAR BERNARD, Professor of Music
GRANT, DAVID ALEXANDER, *Ph.D.*, Instructor in Psychology
GRAY, PHILIP HAYWARD, JR., *Ph.D.*, Assistant Professor of English
GREENE, HENRY CAMPBELL, *Ph.D.*, Curator of Cryptogamic Herbarium
GRIM, HARRIETT ELIZABETH, *Ph.D.*, Instructor in Speech
GROVES, HAROLD MARTIN, *Ph.D.*, Professor of Economics
GUERLAC, HENRY EDWARD, *Ph.D.*, Assistant Professor of History of Science
GUYER, MICHAEL FREDERIC, *Ph.D., LL.D.*, Professor of Zoology
HAGEN, OSKAR FRANK LEONARD, *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
HARRIS, JULIAN EARLE, *Ph.D.*, Associate Professor of French
HARTSHORNE, RICHARD, *Ph.D.*, Professor of Geography
HASLER, ARTHUR DAVIS, *Ph.D.*, Assistant Professor of Zoology
HAUGEN, EINER INGVALD, *Ph.D.*, Thompson Professor of Scandinavian Languages
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.A.*, Assistant Professor of Accounting
HERB, RAYMOND GEORGE, *Ph.D.*, Associate Professor of Physics
HERRICK, CHESTER ALBERN, *ScD.*, Professor of Zoology and Veterinary Science
HERRIN, RAYMOND CLYDE, *Ph.D., M.D.*, Associate Professor of Physiology
HERRIOTT, JAMES HOMER, *Ph.D.*, Associate Professor of Spanish
HESSE, EVERETT WESLEY, *Ph.D.*, Instructor in Spanish and Portuguese
HESSELTINE, WILLIAM BEST, *Ph.D.*, Professor of History
HIGBY, CHESTER PENN, *Ph.D., LL.D.*, Professor of History
HILL, REUBEN LORENZO, JR., *Ph.D.*, Assistant Director, Wisconsin Union; Assistant Professor of Social Education; Lecturer in Sociology and Anthropology
HIRSCHFELDER, JOSEPH OAKLAND, *Ph.D.*, Assistant Professor of Chemistry
HOHLFELD, ALEXANDER RUDOLPH, *Ph.D.*, Emeritus Professor of German
HOLT, MATTHEW LESLIE, *Ph.D.*, Assistant Professor of Chemistry
HOWELLS, WILLIAM WHITE, *Ph.D.*, Assistant Professor of Sociology
HUFFER, CHARLES MORSE, *Ph.D.*, Assistant Professor of Astronomy; Assistant Astronomer
HUGHES, MERRITT YERKES, *Ph.D.*, Professor of English
HYDE, GRANT MILNOR, *M.A.*, Director of the School of Journalism; Professor of Journalism
HYERS, DONALD HOLMES, *Ph.D.*, Instructor in Mathematics
IHDE, AARON J., *Ph.D.*, Instructor in Chemistry
ILTIS, LEON LEONARD, *B.M.*, Associate Professor of Music
INGERSOLL, LEONARD ROSE, *Ph.D.*, Professor of Physics
INGRAHAM, MARK HOYT, *Ph.D.*, Dean of the College of Letters and Science; Professor of Mathematics
JAMES, RALPH DUNCAN, *Ph.D.*, Visiting Lecturer in Mathematics
JASTROW, JOSEPH, *Ph.D., LL.D.*, Emeritus Professor of Psychology
JOHANSEN, GUNNAR, Professor of Music
JOHNSON, GERTRUDE ELIZABETH, *B.S.*, Associate Professor of Speech
JOHNSON, RICHARD EDWARD, *Ph.D.*, Instructor in Mathematics
JOHNSON, WILLIAM SUMMER, *Ph.D.*, Assistant Professor of Chemistry
JONES, PAUL GEORGE, *M.A.*, Assistant Professor of Music

JUDAY, CHANCEY, *M.A., LL.D.*, Emeritus Professor of Limnology
KASTEN, LLOYD AUGUST WILLIAM, *Ph.D.*, Associate Professor of Spanish
KIEKHOFER, WILLIAM HENRY, *Ph.D., LL.D.*, Professor of Economics
KIENITZ, JOHN FABIAN, *Ph.D.*, Assistant Professor of Art History
KIOKEMEISTER, FRED, *Ph.D.*, Instructor in Mathematics
KITTEL, PAULA MARGARETHA, *Ph.D.*, Assistant Professor of German
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, FRANCIS CRAIG, *Ph.D.*, Professor of Chemistry
KUBLY, HAROLD EDWARD, *Ph.D.*, Instructor in Business Administration
LADEN, HYMAN NATHANIEL, *Ph.D.*, Instructor in Mathematics
LAIRD, ARTHUR GORDON, *Ph.D.*, Emeritus Professor of Greek
LANGER, RUDOLPH ERNEST, *Ph.D.*, Professor of Mathematics
LARSEN, EDWIN M., *Ph.D.*, Instructor in Chemistry
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
LÉVÈQUE, ANDRÉ CAMILLE, *Ph.D.*, Assistant Professor of French
LINS, ANGELINE GENEVIEVE, *B.A.*, Assistant Professor in Accounting
LUCKHARDT, HILMAR FRANCIS, *M.A.*, Assistant Professor of Music
LUZENSKA, KUNDA, *Ph.D.*, Instructor in French
LYON, ALBERT EDDY, *Ph.D.*, Assistant Professor of Spanish
MCCORMICK, THOMAS CARSON, *Ph.D.*, Professor of Sociology
MCELVAIN, SAMUEL MARION, *Ph.D.*, Professor of Chemistry
MCGILVARY, EVANDER BRADLEY, *Ph.D.*, Emeritus Professor of Philosophy
MCKINSTRY, HUGH EXTON, *Ph.D.*, Professor of Geology
MCSHAN, WILLIAM HARTFORD, *Ph.D.*, Assistant Professor of Zoochemistry
MACK, JULIAN ELLIS, *Ph.D.*, Associate Professor of Physics
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.*, Associate Professor of Sociology and Anthropology
MELOCHE, VILLIERS WILLSON, *Ph.D.*, Professor of Chemistry
MERCIER, GERMAINE EUGENIE, *M.A.*, Assistant Professor of 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 and 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
MULVIHILL, EDWARD ROBERT, *Ph.D.*, Instructor in Spanish
NASH, PHILLEO, Lecturer in Sociology and Anthropology
NEALE-SILVA, EDUARDO ALVARA, *Ph.B.*, Associate Professor of Spanish
NESBIT, WELLWOOD MACK, *M.D.*, Professor of Otolaryngology
NETTELS, CURTIN PUTNAM, *Ph.D.*, Professor of History
NEWELL, NORMAN DENNIS, *Ph.D.*, Associate Professor of Geology
NOLAND, LOWELL EVAN, *Ph.D.*, Professor of Zoology
ODLE, JOHN WILLIAM, *Ph.D.*, Instructor in Mathematics
OELSCHLAGER, VICTOR RUDOLPH BERNHARDT, *Ph.D.*, Assistant Professor of Spanish
OGG, FREDERIC AUSTIN, *Ph.D., LL.D.*, Professor of Political Science
OLSON, JULIUS EMIL, *B.L.*, Emeritus Professor of Scandinavian Languages
OSBORNE, DARRELL WAYNE, *Ph.D.*, Instructor in Chemistry
OTTO, MAX CARL, *Ph.D.*, Professor of Philosophy

PALMERI, JOSEPH, *Ph.D.*, Instructor in French
PALYI, MELCHIOR, *Ph.D.*, Visiting Professor of Economics
PARKIN, CHARLES ARLEIGH, *Ph.G.*, Pharmacist and Instructor in Pharmacy
PARKS, LLOYD MCCLAIN, *Ph.D.*, Associate Professor of Pharmacy
PATTERSON, HELEN MARGUERITE, *M.A.*, Associate Professor of Journalism
PERLMAN, SELIG, *Ph.D.*, Professor of Economics
PETERSEN, EDWIN BENDIX, *M.A.*, Acting Instructor in Commerce
PETERSON, ALFRED W., *B.A.*, 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.*, Professor of History
POWERS, MARION BEATRICE, *M.A.*, Instructor in the Teaching of Speech Correction
QUINTANA, RICARDO BECKWITH, *Ph.D.*, Professor of English
RAMSPERGER, ALBERT GUSTAV, *Ph.D.*, Assistant Professor of Philosophy
RANDALL, JOHN REED, *Ph.D.*, Instructor in Geography
REHDER, HELMUT, *Ph.D.*, Associate Professor of German
REITER, AMBROSE MATHIAS, *B.S.*, *C.P.A.*, Instructor in Accounting
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
ROESELER, ROBERT OSWALD, *Ph.D.*, Milwaukee Seminary Professor of German
ROGERS, SAMUEL GREENE ARNOLD, *M.A.*, Professor of French
ROLLEFSON, RAGNAR, *Ph.D.*, Associate Professor of Physics
ROSS, EDWARD ALSWORTH, *Ph.D.*, *LL.D.*, Emeritus Professor of Sociology
ROSSI, JOSEPH, *Ph.D.*, Assistant Professor of Italian
RUEDISILI, CHESTER HENRY, *Ph.D.*, Assistant Dean, College of Letters and Science; Lecturer in Psychology
RUSSO, JOSEPH LOUIS, *Ph.D.*, Associate Professor of Italian
SACHSE, WILLIAM LEWIS, *Ph.D.*, Assistant Professor of 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
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.*, Emeritus Dean of the College of Letters and Science; Emeritus Professor of History
SHARP, FRANK CHAPMAN, *Ph.D.*, Emeritus Professor of Philosophy
SHUDOFSKY, MAURICE MITYA, *Ph.D.*, Instructor in English
SIEBECKER, MRS. SOPHIA, *B.A.*, Lecturer in Sociology
SKAUG, ARNE, Acting Assistant Professor of Economics
SKILLING, HAROLD GORDON, *Ph.D.*, Assistant Professor of Political Science
SMITH, HUGH ALLISON, *M.A.*, Professor of French
SOLALINDE, JESUSA A., *M.A.*, Lecturer in Spanish
SOLKOLNIKOFF, IVAN STEPHAN, *Ph.D.*, Professor of Mathematics
SORUM, CLARENCE HARVEY, *Ph.D.*, Associate Professor of Chemistry
SPEARS, MONROE KIRKLYNDORF, *Ph.D.*, Instructor in English
STAUFFER, JOHN FREDERICK, *Ph.D.*, Assistant Professor of Botany
STEBBINS, JOEL, *Ph.D.*, *Sc.D.*, *LL.D.*, Director of the Washburn Observatory; Professor of Astronomy
STERLING, HENRY SOMERS, *Ph.D.*, Assistant Professor of Geography
STERLING, SUSAN ADELAIDE, *M.L.*, Emeritus Assistant Professor of German
STEVE, WILLIAM FREDERICK, *M.A.*, Associate Professor of Physics

STOKE, HAROLD WALTER, *Ph.D.*, Professor of Political Science; Assistant Dean of the Graduate School
STRATMAN-THOMAS, (MARGARET) HELENE, *M.A.*, Instructor in Music
SWAIN, ROBERT LAMOND, *Ph.D.*, Instructor in Mathematics
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.*, 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; Assistant to the the State Geologist
TOMPKINS, CHARLES BROWN, *Ph.D.*, Visiting Lecturer in Mathematics
TREWARTHA, GLENN THOMAS, *Ph.D.*, Professor of Geography
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; Professor of Pharmaceutical Chemistry
ULAM, STANISLAW MARCIN, *M.A., D.Sc.*, Assistant Professor of Mathematics
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
VIVAS, ELISEO, *Ph.D.*, Assistant Professor of Philosophy
WAGNER, GEORGE, *Ph.C., M.A.*, Professor of Zoology
WAHLIN, HUGO BERNARD, *Ph.D.*, Professor of Physics
WAIBEL, LEO, *Ph.D.*, Visiting Professor of Geography
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
WARMINGTON, CARL F., *M.A.*, Lecturer in Sociology
WATROUS, JAMES SCALES, *Ph.D.*, Associate Professor of Art History
WEAVER, ANDREW THOMAS, *Ph.D.*, Professor of Speech
WEST, ROBERT WILLIAM, *Ph.D.*, Professor of Speech Pathology
WHITE, EDWARD ARTHUR, *Ph.D.*, Instructor in History
WHITE, HELEN CONSTANCE, *Ph.D., Litt.D.*, Professor of English
WHITFORD, ALBERT EDWARD, *Ph.D.*, Assistant Professor of Astronomy
WICKENS, DELOS DONALD, *Ph.D.*, Assistant Professor of Psychology
WILDS, ALFRED LAWRENCE, *Ph.D.*, Assistant Professor of Chemistry
WILLARD, JOHN ELA, *Ph.D.*, Assistant Professor of Chemistry
WILLIAMS, JOHN WARREN, *Ph.D.*, Professor of Chemistry
WINANS, JOHN GIBSON, *Ph.D.*, Associate 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.*, Assistant Professor of Zoology

WOOD, CHARLOTTE ROBERTSON, *M.A.*, Instructor in English
WORKMAN, JOHN DAVID, *Ph.D.*, Assistant Professor of German
ZAWACKI, EDMUND IGNACE, *Ph.D.*, Assistant Professor of Polish
ZDANOWICZ, CASIMIR DOUGLAS, *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 58
Course in Commerce, page 73 (School of Commerce)
Course in Humanities, page 65
Course in Journalism, page 78 (School of Journalism)
Premedical Course, page 69

LEADING TO THE DEGREE OF BACHELOR OF SCIENCE
Course in Chemistry, page 63
Course in Hygiene (see School of Nursing Bulletin)
Course in Pharmacy, page 67
Premedical Course, page 69
Course in Medical Technology (see Medical School Bulletin)
Course in Applied Mathematics and Mechanics, page 70

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 61
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 department in which he is majoring 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 student's elections before he is permitted to enter classs.

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 in 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.

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 59. 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 courses in the University.

All candidates for degrees should plan to take their senior year in residence, since the advanced work of the major study normally culminates in the last year of the undergraduate course. Furthermore, the last twenty-one credits earned toward the degree must normally be secured in residence; but 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 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).

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 EXAMINATION

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) and success in passing the examination entitles the student to the same privileges as if he had taken the course, except for credit. 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 of *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. MILITARY SCIENCE AND PHYSICAL EDUCATION

PHYSICAL EDUCATION. Women students are required to take the equivalent of two hours of physical education a week for four semesters. Male undergraduates are required to take two hours of physical education per week during each semester of their residence at the University.

Juniors and seniors enrolled in an advanced course in military science, and students who are certified as physically unfit by the Department of Student Health are exempt from the physical-education requirement. Exemption is also provided for those male students who, from semester to semester, demonstrate their physical fitness and for students who are taking both Band and Military Science. Students who are ineligible for military science, but not certified as physically unfit for physical education will meet the physical-education requirement only during the freshman and sophomore years, unless accepted by a Selected Service Board, in which case the requirement will revive for the remainder of their undergraduate residence at the University.

Although physical education carries no academic credit, it is a requirement for graduation and must be entered on the study list in the same way as other subjects.

MILITARY SCIENCE. All male freshmen and sophomores are required to enroll in military science at the time of registration with the provision that the following groups of students will be exempt: (a) students who qualify and are accepted for membership in the Regimental Band, (b) students who do not meet the established physical requirements for military science as certified by the Student Health department, and (c) students who for other reasons are exempted or excluded by the Department of Military Science.

Students entering from secondary schools where they have had the basic ROTC Course may, if selected, take the advanced course for credit in fulfillment of the general requirement in military science.

Although no academic credit is given for the basic course in military science, it is a requirement for graduation and must appear on the student's study list in the same way as any other regular subject.

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 60 grade-points and at least 60 credits, obtaining during his senior year a grade-point average of 1.0 on all credits taken, whether passed or not. 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.

Letters and Science students electing law in their senior year may satisfy the above requirement as to the last two years by securing a grade-point average of 1.0 on all credits taken in the last half of the 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 a certificate of Junior Graduate in Liberal Studies, upon application to the Dean of the College.

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 ration 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 Wisconsin. 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.

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* 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.

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 pages 69 and 70.

MEDICAL TECHNOLOGY. A four-year course leading to the degree of Bachelor of Science (Medical Technology) has 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.

A Letters and Science *major* is bacteriology, for the degrees of B.A. and Ph.B., may be constructed as follows: the student will meet the usual requirements for the B.A. or Ph.B. degree and secure a minimum of 24 credits in the major including the following: Medical Bacteriology 1 and 2, or 102 and 104; Zoology 119; Physiological Chemistry 104 and 117; and any courses in the "100" group (including thesis) in either Agricultural or Medical Bacteriology to complete the required twenty-four credits. The satisfactory completion of the courses laid down as prerequisite to the *major* courses specified above forms an integral part of this major.

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 105—Peoples of North, 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 relations	3
Geography 102—Geography of South America	3
Geography 111—Geography of Middle America	2
History 119—Latin American History History 130—Spain and the Spanish Empire	6
Journalism 121—Interpreting 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 to 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 statistics
Com. 109—Commercial law
Com. 114—Marketing management
Econ.-Com. 105—Money and banking
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., 1901-1941
Hist. 138—History of Europe, 1789-1871
Journ. 120—Interpreting foreign news
Pol. Sci. 25—Survey of world politics
Pol. Sci. 118 and 119—Principles 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 61.) 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), Nettles, 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
103	Fiscal Policy	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
134	Economic History of the U. S.	2-3
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
147	Government and Labor	3
152	Farmer Movements	3
155	Profit and Risk	3
174	The Labor Market	3
179	Urban Land Economics	3
180	Departmental Reading Course*	2-4
191	Central Banking	3

Geography

		Credits
3	Economic Geography	3
6	Survey of Human World Geography (Regional)	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

		Credits
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

* 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.

		Credits
113	American Social History	3
114	Sectionalism and the Civil War	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
122a	American Economic Life (1789-1860)	3
122b	The Age of Big Business (1861-1942)	3
124	Recent History of the United States	3-6
141	English Constitutional History	3-6
180	Departmental Reading Course*	2-4

Philosophy

1	Introduction to Philosophy	3
11	Elementary Logic	3
25	Man and Nature	3
41	Introductory Ethics	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	Rural Local 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	Constitutional Background of Social Legislation	3
147	Government and Technology	3
152	Government and National Resources	3
165-6	American Political Thought	3-6
170	The Civil Service	3
180	Departmental Reading Course*	2-4

Sociology and Anthropology

3	Introduction to Anthropology	3
101	American Archaeology	3
105	Indians of the Americas	3
125	Rural Social Trends	2
127	Rural Community Organization	3
132	Introductory Social Statistics	3
139	Social Psychology	3
141	Poverty and Dependency	3
160	Marriage and Family	3-4
161	Criminology and Penology	3
163	Modern Population Problems	3
164	Problems of Racial and Monetary Groups	3
169	Processes of Social Disorganization	3
174	The Modern City	3
177	Social Legislation	3
180	Departmental Reading Course*	2-4
197	Personality and Social Structure	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. The major is administered by a Committee of Advisers representing the Departments of Political Science, Economics and the interested language departments. 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 an introductory history or social science course, English, 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.

* 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 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

Economics

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

Commerce

109	Commercial law	3

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

Political Science

* 25	Survey of world politics	3
*112	Constitutional law	3
*118	Principles of International law	3
119	Problems of International law	3
*123	American diplomacy: Organization and practice	2
127	Comparative govt.: Great Britain	3
128	Comparative govt.: Continental Europe	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
155	The United States and the Far East	3
*139	History of Europe, 1871-1943	6
143	The British Empire since 1815	6
147	Modern Britain, 1815 to the Present	3
178	Recent German history	2-3

Geography

*3	Economic geography	3
	or	
*6	World survey of human geography (regional)	3

Geology

*150	Economic aspects of geology	2

SPECIALIZATION IN THE LATIN-AMERICAN REGION

ADVISER, PROFESSOR NEALE-SILVA

Commerce

		Credits
†8	Elements of accounting	3
9	Intermediate accounting	4
†13	Marketing methods	3
31	Business Statistics (or Econ. 30)	3
109	Commercial law	3
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 relations	3

Economics

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

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

Anthropology

		Credits
105	The Indians of North, Central and South America	3

History

*4a-b	History of the United States	6
*119	Latin American history	6
120	American foreign relations	6
122a	American economic life (1789-1860)	3
122b	The age of big business (1861-1942)	3
124	Recent history of the U. S.	6

Political Science

* 25	World politics	3
118	Principles of International law	3
119	Problems of International law	3
123	American diplomacy	2
127	Comparative govt.: Great Britain	3
128	Comparative govt.: Continental Europe	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	Physical earth and its resources	3
6	World survey of human geography (regional)	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 are: Spanish 21 (Elementary survey of Spanish literature), Spanish 27 (Commercial letter writing), Spanish 47 (Spanish America of today), Spanish 117 (Commercial and technical language practice in Hispanic countries), Spanish 146 (Latin-American literature), and Spanish 150 and 151 (Hispanic civilization).

Students who specialize in the Latin-American region should have a grade-point average of at least 1.8 before they are accepted as majors. All majors in this field will be required to write a thesis on a Latin-American topic in the Department of Economics, Geography, History or Political Science.

SPECIALIZATION IN THE ECONOMIC PHASES OF INTERNATIONAL RELATIONS

ADVISER, PROFESSOR KIEKHOFER

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 industrial society	3
*126	International trade in agricultural products	3
146	Government and business	3
*153	International finance	2
158	Large scale enterprise	3

Commerce

†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	Principles of International law	3
119	Problems of International law	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: Great Britain), 128 (Comparative gov't: Continental Europe), 131 (The U. S. and Latin America), 132 (Africa in world politics), and 133 (The Near and Middle East in World Politics), and (The U. S. and the Far East.).

History

		Credits
*4a-b	History of the United States	6
120	American foreign relations	6
*122a	American economic life (1789-1860)	3
*122b	The age of big business (1861-1942)	3
*124	Recent history of the United States	6
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 147 (Modern Britain, 1815 to the present).

Geography

*3	Economic geography	3
5	Physical earth and its resources	3
*6	World survey of human geography (regional)	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 the Far East).

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 47).

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 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, and 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 meet the specific prerequisites laid down for them.

Upon checking at the office of the dean their compliance with the regulations a, b, c, d of this section, students with the proper prerequisites will be given permission under the Twenty Credits Rule to take Home Economics 2, 3, 6, 7, 8, 18, 20, 50, 109, 110, 116, 117, 119, and 127. Not both of Home Economics 2 and Art Education 50 or both of Home Economics 119 and Education 119 may be taken for credit.

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: Agricultural 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 69.

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. Recent regulations permit students who enroll in any of the enlisted reserve plans to apply for admission at the end of the sophomore year.

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 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 61.

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 and one minor subject, or a major subject and two minor subjects, as outlined under the appropriate departmental heading in the bulletin of the School of Education.

IV. Recommendation of the departments of the major and minor subjects, or the responsibile 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

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

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 in a year-course. (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 languages 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 45) 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. They may not be taken for credit by students who have had either semester of the year course in the same subject above.

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 (algebra and trigonometry)—four credits
Mathematics 1b (trigonometry and analytic geometry)—four credits
Mathematics 3a (algebra and trigonometry)—four credits
Mathematics 3b (analytic geometry and introductory calculus)—four credits
Mathematics 4 (Solid geometry and spherical trigonometry)—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 mathe-

matics 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 37 (Latin and Greek words in English)—two credits, second 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 percentil 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 MATHMATICS:* A total of 20 credits in either mathematics or natural science or in both. The science must include laboratory or field work. The sciences may be credited by semesters, but at least two semesters of mathematics are necessary, if mathematics be presented toward this requirement.

(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 to complete the science-mathematics requirement and history option commenced in the 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

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

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).

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 correspond to the Ph.B. requirements and numbers II and IV to 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 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. 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.

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*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 1a, 1b, 11, or 41 may be elected in satisfaction of this requirement.

† 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.

VI. COURSE IN CHEMISTRY

J. H. MATHEWS, DIRECTOR, PROFESSOR OF CHEMISTRY

The purpose of the Course in Chemistry is to give students a broad basic training in chemistry which will be adequate for those who desire to enter the chemical industry, or to teach chemistry in secondary schools, or to continue their training by doing graduate work for advanced degrees. It does not profess to train chemists for specific industries, for each industry has its special problems and methods. An intensive four year training is adequate for those who do not wish to become specialists and for those who do not wish to do research; research requires a considerable amount of graduate work. Students who do exceptionally well in their undergraduate work are encouraged to go on with graduate studies so that they may qualify for more responsible positions.

The Chemistry Course also provides a good preparation for the subsequent study of medicine. Also, by election of certain commercial subjects an excellent preparation for administrative and executive positions in industries which are based on chemistry may be obtained. Most industries now have chemical control laboratories and many maintain their own research staffs. Particular industries maintain central research laboratories to serve the entire industry. Positions in such laboratories are desirable as they often lead to excellent positions in the industry. The demand for men at both the bachelor's level and the doctorate level has been heavy in recent years, and because of the present defense demands there is now a tremendous shortage of trained chemists at all levels.

In order to broaden the educational program, the course provides for a substantial amount of elected and required work outside the field of chemistry. Three options are offered—a general option, an option for industrial chemists and an option for food or sanitary chemists.

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

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 10a and 10b in German and courses 1a and 1b in French is required, but high-school work in these languages may be counted toward this requirement. Courses 1a and 1b in either Spanish or Portuguese may be substituted for French 1a and 1b, if desired. 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 Education	0	Engl. 1b—Freshman composition	3
Military Science	0	Physical Education	0
		Military Science	0
	16		17

GENERAL OPTION

SOPHOMORE YEAR

Chem. 11a—Quantitative analysis	5	Chem. 11b—Quantitive 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
Physical Education	0	Physical Education	0
Military Science	0	Military Science	0
	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
Physical Education (Men)	0	Physical Education (Men)	0
	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
Physical Education (Men)	0	Electives	6
		Physical Education (Men)	0
	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
Physical Education (Men)	0	Physical Education (Men)	0
	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
Physical Education	0	Physical Education	0
Military Science	0	Military Science	0
	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	Physical Education (Men)	0
Physical Education (Men)	0		
	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
Physical Education (Men)	0	Physical Education (Men)	0
	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: PROFESSORS 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 methods. 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 41-58). 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. 58; 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 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. (See bulletin of the School of Education.)

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 Education	0	Physical Education	0
Military Science	0	Military Science	0
	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
Physical Education	0	Physical Education	0
Military Science	0	Military Science	0
	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, 1, 132, or 145	3
Philosophy 11, 1, 31, or 41	3	Pol. Sci. 1 or 7—Introduction to government and politics	3
Math. 101a or 103a—Calculus	3	Math. 101b or 103b—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, PROFESSOR OF PHARMACEUTICAL CHEMISTRY.

The course in pharmacy is an integral part of the University and is governed by the same general policy that characterizes that institution. The object of the course is to furnish a thoroughly 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 become hospital pharmacists, pharmacognosists, pharmacists in the Army or Navy, to take up pharmaceutical manufacturing, to engage in pharmaceutical research, or to enter the government service. The elements of the fundamental natural sciences, botany, chemistry, and physics must be studied and their principles understood before their applications to pharmacy can naturally be considered. For this reason students in pharmacy are required to pursue general elementary courses in these fundamental sciences, where they have the advantage of close association with students in other departments of the University.

AMERICAN ASSOCIATION OF COLLEGES OF PHARMACY. The University is a member of the American Association of Colleges of Pharmacy, the object of which is to promote the interests of, and to standardize pharmaceutical education. Many states by law or by ruling of the State Board of Pharmacy recognize only those schools which hold membership in this organization.

AMERICAN COUNCIL ON PHARMACEUTICAL EDUCATION. The American Council on Pharmaceutical Education is sponsored by the American Pharmaceutical Association, the National Association of Boards of Pharmacy, and the American Association of Colleges of Pharmacy. The purpose of this Council is to advance the standards of pharmaceutical education and to provide a list of acceptable colleges of pharmacy for state boards of examiners etc. This School of Pharmacy is accredited by the Council.

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. The Master of Science and the Doctor of Philosophy degrees are conferred upon candidates who have successfully met the requirements of the respective courses. 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.

REQUIREMENTS FOR GRADUATION. The Course in Pharmacy requires 128 credits, including a thesis, for graduation. The first two years are devoted largely to the study of languages and the fundamental sciences. Year courses in English, biology, chemistry, and physics are required.

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 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.

Students should notice that the outline of the course, which covers the eight semesters, offers only a limited opportunity for electing foreign-language courses. Accordingly they should either absolve most of the foreign-language requirements in high school or arrange to complete most of them in Summer Session or by correspondence.

SUMMER SESSION. The University of Wisconsin maintains a regular summer session of which the Department of Pharmacy is an integral part. For details, those interested should write to Dean S. H. Goodnight at the University.

COURSE IN PHARMACY

LEADING TO THE DEGREE OF BACHELOR OF SCIENCE (PHARMACY)

RECOMMENDED SEQUENCE

FRESHMAN YEAR

First Semester	Credits	Second Semester	Credits
English 1a—Composition	3	English 1b—Composition	3
Foreign Language	4	Foreign Language	4
Chemistry 1a—General	5	Chemistry 1b—General	5
Physics 65—General	3	Physics 65—General	3
Pharmacy 1—Orientation	0–1	Pharmacy 1—Orientation	0–1
Physical Education	0	Physical Education	0
Military Science	0	Military Science	0
	16		16

SOPHOMORE YEAR

Pharm. Chem. 24—Organic	4	Pharm. Chem. 24—Organic	4
Foreign Language	3	Foreign Language	3
Agr. Bacteriology 1	4	Pharmacy 4	4
Pharmacy 3	2	Botany 1—General	5
Zoology 17—Survey	3	Physical Education	0
Physical Education	0	Military Science	0
Military Science	0		
	16		16

JUNIOR YEAR

Pharm. Chem. 145—Assaying	4	Pharmacy 20—Elem. prescription practice	4
Pharm. Chem. 126—Inorganic	3	Pharm. Chem. 127—Organic	3
Pharmacy 128—Technology	4	Pharmacognosy 112—Classification and identification	3
Pharmacognosy 112—Classification and identification	3	Pharmacy 51—Practice	2
Pharmacy 50—History of pharmacy	2	Physiology 3—Animal Physiology	4
Physical Education (Men)	0	Physical Education (Men)	0
	16		16

SENIOR YEAR

Pharmacy 100—Senior thesis	2	Pharmacy 100—Senior thesis	2
Pharmacognosy 120—History of drugs	3	Pharmacognosy 120—History of drugs	3
Pharm. Chem. 140—Plant chemistry	3	Pharm. Chem. 140—Plant chemistry	3
Pharm. Chem. 146—Drug assay	2	Pharmacy 121—Advanced prescription practice	4
Pharmacy 114—Materia medica	3	Electives	4
Electives	3	Physical Education (Men)	0
Physical Education (Men)	0		
	16		16

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 an examination taken at the University of Wisconsin, or by the securing of a grade of at least a C at the University of Wisconsin in the fourth semester or a more advanced course of the language chosen) 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, a course in embryology, 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 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	English 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 Education	0	Physical Education	0
Military Science	0	Military Science	0
	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
Physical Education	0	Physical Education	0
Military Science	0	Military Science	0
	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)
Physical Education (Men)	0	Physical Education (Men)	0
	14-15		14-15

PREMEDICAL CURRICULA

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

RECOMMENDED SEQUENCE FOR THE THREE-YEAR COURSE

FERSHMAN 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 Grman 1b	4
Physical Education	0	Physical Education	0
Military Science	0	Military Science	0
	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
Physical Education	0	Physical Education	0
Military Science	0	Military Science	0
	15		15

JUNIOR YEAR

Physics 1a or 31	5	Physics 1b or 31	5
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	Physical Education (Men)	0
Physical Education (Men)	0		
	15		15

X. COURSE IN APPLIED MATHEMATICS AND MECHANICS

COMMITTEE IN CHARGE: PROFESSORS LANGER, ROARK, SOKOLNIKOFF (*chairman*), WAHLIN, WOODBURN.

The demands of government and industry indicate a great need for individuals broadly trained in the fundamentals of Mathematics, Physics, and Engineering. It is a primary purpose of this new course to fill this need. Although the demand is greatly accentuated by the requirements of the war industries, it should be emphasized that the need will continue after the war in proportion to the growth of industrial research.

The course does not provide specialized training in any branch of engineering, but furnishes essential preparation in those studies which are indispensable to designing engineers and workers in the more advanced reaches of engineering. It provides a sufficiently varied and thorough foundation for postgraduate studies in mathematics, mechanics, physics, and several fields of engineering. However, to meet the requirements of many positions in industrial research further study leading to a master's degree in some field of engineering is necessary.

REQUIREMENTS FOR ADMISSION AND GRADUATION. For graduation from the course in Applied Mathematics and Mechanics, 125 credits are required. Admission to the course is restricted to students whose high-school training in mathematics includes at least one-and-a-half years of algebra and a year of geometry, or who have passed

equivalent entrance examinations. Admission to the sophomore year is restricted to those who have at least 1.75 grade-point average in the courses in mathematics and physics or chemistry taken during the freshman year. The grade-point average of at least 1.75 in all subjects taken at the University of Wisconsin (even if not passed) shall be required for graduation from this course.

Students may satisfy the requirement in German by one of the following: (a) securing from the Department of German of this University certification of ability to read scientific German with the aid of the dictionary, (b) the satisfactory completion of the fourth semester German, (c) the satisfactory completion of the special six credit course in German especially designed to meet the needs of students enrolled in the Applied Mathematics and Mechanics Course. Students who have had no German in high school may find it advisable to elect beginning German before the junior year.

PROFESSIONAL ELECTIVES

In order to facilitate the planning of a coordinated program of studies for students with special interests in the fields indicated below, the following suggestions for professional electives are made.

1. Mathematics

	Credits
117—Vector Analysis	3
118—Probability & Statistics	3
137—Adv. Probability & Statistics	3
217—Tensor Analysis	3
220—Theory of Functions	6
243—Modern Theory of Differential Equations	3
267—Calculus of Variations	3
268—Partial Differential Equations	3
269—Theory of Integral Equations	6
250—Theory of Elasticity	3
251—Theory of Potential	3
Phys. 211—Advanced Dynamics	6
Phys. 215—Theory of Electricity	6

2. Mechanics (See also M.E. & C.E.)

53—Materials of Construction	2
102—Advanced Statics	3
102—Advanced Dynamics	3
109—Graphics	2
111—Aerodynamics	3
112—Airplane Stress Analysis	3
113—Design of Airplane Parts	2
Ch. E. 8—Metallography	2
or Ch. E. 119—Metallography	3

3. Physics

102—Advanced Heat	3
104b—Advanced Electricity	3
106—Introduction to Contemporary Physics	2-3
115—Introduction to Thermodynamics	3
117—Physical Optics	3
118—Kinetic Theory of Matter	3
124—Mathematical Theory of Heat Conduction	2-3
126—Recent Developments in Experimental Physics	3
210—Introduction to Theoretical Physics	6
211—Advanced Dynamics	6
215—Theory of Electricity	6
212—Quantum Mechanics	6

4. Chemistry and Chemical Engineering

	Credits
Chem. 130, Chem. 131—Physical Chemistry	6
Ch. E. 111—Manufacturing Operations	6
Ch. E. 118—Chemical Engineering Thermodynamics	3
Ch. E. 119—Metallography	3
Ch. E. 130—Heat Transmission	3
Ch. E. 131—Industrial Reaction Rates	3
Chem. 237—Quantum Chemistry	2
Chem. 230—Advanced Physical Chemistry	6
Chem. 149—Colloid Chemistry	2

5. Civil Engineering

C. E. 118—Short Course in Surveying	3
C. E. 157—Structural Analysis	3
C. E. 158—Structural Analysis	2
C. E. 21—Engineering Curves	2
C. E. 22—Theory of Route Surveying	3

6. Electrical Engineering (Electronics) (See also Physics)

101—Economics of Engineering	3
102—Economics of Engineering	3
155—Thermionic Vacuum Tube	3
156—Elements of Wire Communication	3
157—Radio Circuit Analysis and Design	3
158—Ultra-High Frequency Techniques	5
232—Advanced Electric Circuits	3

7. Mechanical Engineering

37—Welding	2
41—Mechanism	4
42—Design Practice	1
43—Machine Elements	4
64—Heat-Power Engineering	3
74—Elementary Testing	2
106—Power Plant Economics & Design	3
108—Heating & Ventilating	3
109—Internal Combustion Engines	3
112—Refrigeration	3
Ch. E. 8—Metallography	2
Ch. E. 119—Metallography	3

COURSE IN APPLIED MATHEMATICS AND MECHANICS

LEADING TO THE DEGREE OF BACHELOR OF SCIENCE (APPLIED MATHEMATICS AND MECHANICS)

RECOMMENDED SEQUENCE

FRESHMAN YEAR

First Semester		Second Semester	
English 1a—Freshman composition	3	English 1b—Freshman composition	3
Math. 51, 3a, or 53—Elementary analysis	5-4	Math. 52, 3b, or 102a—Calculus	5-4
Chem. 1a, 2a, or 4a—General chemistry or Physics 51, 31, or 1a—General physics	5-4	Chem. 1b, 2b, or 4b—General chemistry or Physics 52, 31, or 1b—General physics	5-4
Drawing 1—Elements of drawing	3	Drawing 3—Descriptive Geometry	3
Military Science	0	Physical Education	0
Physical Education	0	Military Science	0
	16-14		16-14

SOPHOMORE YEAR

Math. 102a or 102b—Calculus	4	Math. 102b—Calculus or 110—Higher mathematics	4-3
Physics 51, 31, or 1a—General physics or Chem. 1a, 2a, or 4a—General chemistry	5-4	Physics 52, 31, or 1b—General physics or Chem. 1a, 2a, or 4a—General chemistry	5-4
Mech. 1 & 2—Statics & dynamics	5	Mech. 3—Mechanics of materials	5
M. E. 25—Mechanical practice	2	Electives	2-3
Military Science	0	Military Science	0
Physical Education	0	Physical Education	0
	16-15		16-15

JUNIOR YEAR

Math. 110—Higher mathematics	3	Math. 110 or 116—Higher analysis	3
Math. 104—Theoretical machanics	3	Math. 104—Theoretical mechanics	3
Physics 104a—Electricity & magnetism	3	Physics 103—Light	3
M. E. 63—Thermodynamics	3	Mech. 106—Advanced mechanics	3
German	3	Electives	2-3
Electives	2-3	Physical Education	0
Physical Education	0		
	17-18		17-18

SENIOR YEAR

Math. 265—Harmonic analysis	3	Math. 265—Harmonic analysis	3
E. E. 8—Electrical machinery	3	E. E. 9—Electrical machinery	3
C. E. 71—Hydraulics	3	Mech. 107—Mechanics of vibrations	3
Physics 116—Electric circuits	3	C. E. 177—Fluid mechanics	3
Electives	5-6	Electives	5-6
Physical Education	0	Physical Education	0
	17-18		17-18

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 44) 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 58-61.

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—Business communication	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 109a-109b—Commercial law (senior year)	6
Commerce 142—Public utilities	3
Economics 1a—General economics (sophomore year)	4
Free electives in Commerce and Economics	12
	44

4. Completion of not less than 44 nor more than 64 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 44 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 64 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 percent 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 percent 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—Acounts 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. 158—Large-scale enterprise	3
Com. 191—Central banking	3
Com. 192—Monetary economics	3
Econ. 103—Fiscal policies	3
Econ. 124—Taxation	3
Econ. 175—Business cycle theories	3

III. Marketing

Marketing majors are required to take Commerce 6, 13, 15, 114, 170, 198. Commerce 113 or 116 may be elected.

These courses should be taken in the following sequence: 6 and 13 in the first or second semester of the junior year; 15 in the first semester of the junior year; 114 in the second semester of the junior or senior year; 170 in the first semester of the senior year; 198 in the second semester of the senior year. (Note: 113 may be elected in the first semester of the senior year and 116 in the second semester of the senior year.)

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—The consumer and merchandising	3
Com. 198—Modern problems in distribution and public relations	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

Insurance majors must take Com. 139, Principles of insurance, Com. 137, Corporation finance, in addition to 12 credits selected from the list below to include courses 121 and 138.

	Credits
Com. 109b—Commercial law	3
Com. 110—Investments	3
Econ. 120—Social security	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
Com. 185—Analysis of financial reports	2
Math. 24—Theory of life insurance	3

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)	4

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

Those interested in other courses in statistics should see the listings of the Division of Statistics in the Graduate Bulletin.

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—Business communication	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
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, Women's Commerce Club, and Delta Phi Epsilon.

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 typographical, photographic, radio, and typewriting laboratories for conducting its work, as well as 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, or 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 foreign countries. Courses are also offered in retail advertising, national advertising, business writing, and marketing methods. Foreign newspapers are studied in special courses given by the Departments of French, Spanish, German, and Italian.

See page 147 for list of courses. Additional information is available 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 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 54), 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. "Back shop" laboratory work on linotype, stereotyping, presses, cost accounting, and job estimating is provided at the Campus Publishing plant for Journ. 107 and 108.

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.

WOMEN'S FIELDS. Through cooperation with the Department of Home Economics, women students preparing to edit women's sections in newspapers or magazines may elect courses on household furnishing, costume design, textiles, dietetics, child training, etc.

AGRICULTURAL JOURNALISM. The School of Journalism and the Department of Agricultural Journalism offer courses to supplement each other.

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 its own printing plant, is edited by a staff organized from the students interested in journalism. The *Octopus,* a humorous periodical, and the *Badger,* 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) personal 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.

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 credits, or 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 certified copies 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, 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 58.) 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 the 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	Writing of special articles	3-I	3	3	.....	3	3
106	Critical writing	4-II	.....	.....	.....	2	2
107	Community newspaper	3-I	.....	3	.....	.....	.....
108	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	Periodical 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 cr.

* 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 elected from at least 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
117—American constitutional history 3
120—American foreign relations 3
122—American economic life 3
124—Recent history of the United States, since 1873 3
138-139—Europe since 1815 3
143—The British Empire since 1815..... 3
150—Modern Britain, since 1760..... 3
178—Recent German history 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: British..... 3
128—Comparative government: European.. 3
131—The United States and Latin America 3
134—Rural local government..... 3
135—Municipal administration 3
137—International organization and diplomacy 3
139—State government 3
140—Far Eastern politics 3
144—Police power and social legislation.... 3
165—History of American political thought. 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:

1, 2—Introductory sociology 6
46—Introduction to anthropology..... 3
132—Introductory social statistics..... 3
139—Social psychology 3
140—Principles of sociology 3

	Credits
141—Poverty and dependency	3
160—Marriage and family	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:	
Psych. 50—Applied psychology	2
Psych. 106—Abnormal psychology	3
Psych. 108—Human emotions and motivation	3
Psych. 144—Psychology of learning	3
Phil. 1a—Introduction to philosophy	3
Phil. 11—Elementary logic	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 Education	0	Physical Education	0
Military Science	0	Military Science	0
	15-16		15-16

SOPHOMORE YEAR

Journ. 2—Newspaper reporting	3	Journ. 2—Newspaper reporting	3
English 30a, 32a, 33a, or 40a	3	English 30b, 32b, 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
Physical Education	0	Physical Education	0
Military Science	0	Military Science	0
	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
Journ. 10—News photography	1	Journ. 105b—Magazine articles	2
Social science options	3–6	Social science options	6–8
Free electives	5–2	Free electives	5–3
Physical Education (Men)	0	Physical Education (Men)	0

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
Physical Education (Men)	0	Physical Education (Men)	0

COMMUNITY NEWSPAPER GROUP

JUNIOR YEAR

Journ. 3—Desk work	3	Journ. 3—Desk work	3
Journ. 105a—Writing of special articles	3	Journ. 108—Business course	3
Journ. 107—Community newspaper	3	Commerce 13—Marketing methods	3
Commerce 15—Advertising principles	2	Journ. 10—News photography	1
Econ. 25—Rural life	(3)	Social science options	6–8
Social science option	3	Free electives	4–2
Free electives	3	Physical Education (Men)	0
Physical Education (Men)	0		

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	2	Econ. 127 or 192	(2)
Social science options	3–6	Social science options, or	6–8
Free electives	7–3	Free electives	3–1
Physical Education (Men)	0	Physical Education (Men)	0

JOURNALISM-ADVERTISING GROUP

JUNIOR YEAR

Journ. 3—Desk work	3	Journ. 4—Advertising typography	1
Journ. 105a—Writing of special articles	3	Journ. 117—Periodical 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
Physical Education (Men)	0	Physical Education (Men)	0

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
Physical Education (Men)	0	Physical Education (Men)	0

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—Periodical journalism	2
Social science options	3–6	Social science options	5–8
Free electives	6–3	Free electives	4–3
Physical Education (Men)	0	Physical Education (Men)	0

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
Physical Education (Men)	0	Free electives	7–5
		Physical Education (Men	0

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 61.)

JUNIOR YEAR

Journ. 3—Desk work	3	Journ. 3—Desk work	3
Journ. 105a—Writing of special articles	3	Journ. 117—Periodical 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
Physical Education (Men)	0	Physical Education (Men)	0

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	Journ. 10—News photography	1
Education 75	5	Education 76	5
Social science options	4	Education 84	2
Free electives	1	Social science option	2
Physical Education (Men)	0	Physical Education (Men)	0

* 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

GEORGE C. ALLEZ, 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 it 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.

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.

Persons anticipating positions in school library work should plan to meet state requirements for a teacher's certificate. There is a growing tendency for various State Education Departments to require a teacher's certificate in addition to library training for certification as High School librarians.

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. Text books will average $20 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 makes every effort to place graduates in suitable positions.

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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, sociology, and social psychology.

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

Under certain conditions and with the approval of the faculty, students preparing themselves for special library work may substitute a thesis for Library Service 115 and 116.

SUBJECTS OF INSTRUCTION

ADMINISTRATIVE

LIBRARY SERVICE 101 AND 102—Library administration. Principles of library administration; techniques, methods and procedures practiced in library administration and organization, with emphasis on their practical application to various types of libraries.

BIBLIOGRAPHIC

LIBRARY SERVICE 111 AND 112— Reference and subject bibliography. Critical evaluation of standard works of reference to train the student to use and judge them for reference and research value in different types of libraries. A study of bibliographies in subject fields. Study deals with authority, date, scope, arrangement and usefulness in different types of libraries.

LIBRARY SERVICE 113 AND 114—Book selection. Selection of a book collection related to reading interests and needs of the clientele 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; preparing scripts for radio; reviewing for organized groups.

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 education of the young reader. Modification of the book collection to meet the needs of the reader and the objectives of the curriculum; story telling; instruction in use of books and libraries.

TECHNICAL

LIBRARY SERVICE 121 AND 122—Cataloging and classification of books. Introduction to the principles of cataloging and classification of books. The organization of knowledge in libraries through the use of the dictionary catalog, the unit card system and the Dewey Decimal system of classification. Supervised laboratory practice in the detailed study of catalog card entries and the assignment of classification numbers.

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 history of libraries from the earliest times to the present day. The course is designed to familiarize the student with 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 54). 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 advanced and more 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. Students may take applied music for credit (not less than two credits per semester) provided they can qualify as junior music students in the field of applied music.

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 subjects may be taken for credit.

The regular university calendar applies to the School of Music.

REQUIREMENTS FOR ADMISSION

The general requirements, in addition to those for admission to the University, include a 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: syllables, 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 admitted to the School of Music.

SPECIAL REQUIREMENTS FOR MAJORS IN APPLIED MUSIC

PIANO. Applicants for admission 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.

Additional semester charges are made for the rental of practice rooms and instruments as follows: (a) band and orchestral instruments $2.50 when used without playing in the organizations, and $1.50 if played in either organization, (b) piano, one hour daily $4.00, (c) organ, one hour daily $9.00*. All fees must be paid before instruction begins. Students enrolling at any time previous to the fifteenth day of any semester will be charged the full practice room fees for the semester, but after that date a reduction may be made at the discretion of the Director. Refunds of these charges are made on the basis of time expired until mid-semester, after which no refund is made.

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 .

* This rate does not apply to the use of the concert organ, for which special arrangements must be made.

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 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 Freshman Band. The First Regimental Band and Freshman Band 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. Freshmen and sophomores taking band are not required to take military science. Upperclassmen who are members of the Concert Band and members of the other bands who are invited to remain for duty at Commencement receive a stipend of fifteen dollars for freshmen and sophomores and thirty dollars for others. 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 and the Pro Arte Quartet at frequent intervals during the concert season.

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 12, page 46) 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 in 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, The teaching of vocal methods, 5 credits, or Educational Methods 3a and 3b, 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 Education	0	Physical Education	0
Military Science	0	Military Science	0
	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)
Physical Education	0	Physical Education	0
Military Science	0	Military Science	0
	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
Physical Education (Men)	0	Physical Education (Men)	0
	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
Physical Education (Men)	0	Physical Education (Men)	0
	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	Physical Education (Men)	0
Physical Education (Men)	0		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
Physical Education (Men)	0	Letters and Science	3
	16	Physical Education (Men)	0
			15-16

MAJOR IN THEORY AND HISTORY: NORMAL SEQUENCE FOR DEGREE

JUNIOR YEAR

Music 81, 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
Physical Education (Men)	0	Physical Education (Men)	0
	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
Physical Education (Men)	0	Physical Education (Men)	0
	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

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 reading or written work and an examination. Mr. Dykstra and members of the faculty.

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

ANTHROPOLOGY

For an undergraduate major in Anthropology, see Sociology and Anthropology, page 173.

For courses in Anthropology, see page 175.

ART HISTORY AND CRITICISM

Professor Hagen, *chairman;* Associate Professor Watrous; Assistant Professor Kienitz.

The department offers to the general student semester courses providing broad surveys of the history of art based upon aesthetic analysis, i.e., criticism 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 49.

22. Elements of the Fine Arts. I, II; 3 cr. Analysis of the conditions—local, general, personal and technical—that give rise to architectural, sculptural, 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 Graphic Arts. II; 2 cr. History of woodcut, engraving, etching and lithography from the origins of the 15th century to the present. 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.

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: A semester course in Art History or concurrent registration. Mr. Watrous.

142. The Historical Techniques of Painting. II; 3 cr. Prerequisite: A semester course in Art History 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, France 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. Prerequisites: Mathematics 1b and consent of instructor. 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. Huffer.

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 department of Medical Bacteriology and Agricultural Bacteriology are accepted as regular Letters and Science courses. For description of these courses see the bulletins of the College of Agriculture and the Medical School. Requirements for a major in Bacteriology may be found on page 48.

BIOLOGY

Study in the biological 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, CURTIS, DENNISTON, EVANS, STAUFFER; CURATOR 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. Mr. Bryan, Mr. Evans, and staff.

2. ADVANCED GENERAL BOTANY. II; 5 cr. Prerequisite: Botany 1. 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. Mr. Evans.

100. Senior Thesis. Yr; 2-3 cr. A subject should be selected, if possible, before the close of the junior year. Staff.

101. Diseases of Plants. I; 3 cr. Prerequisites: Plant Path. 7 or Agr. Bact. 1 and Bot. 104. Mr. Walker, Mr. Backus.

102. Methods in Plant Pathology. I; 3 cr. Prerequisite: Botany 101. Mr. Riker.

103. Morphology of Algae. I; 3 cr. Prerequisite: Botany 1. Offered 1942-43 and in alternate years. Mr. Allen.

104. Morphology of Fungi. I; 3 cr. Prerequisite: Botany 1. Mr. Gilbert.

107. Morphology of Gymnosperms. I; 3 cr. Prerequisite: Botany 1. Offered 1943-44 and in alternate years. Mr. Bryan.

108. Morphology of Angiosperms. II; 3 or 4 cr. Prerequisite: Botany 1. Miss Fisk.

110. Plant Histology. I; 3 or 4 cr. Prerequisite: Botany 1. Mr. Denniston.

111. Microscopical Examination of Drugs and Foods. II; 3 cr. Prerequisite: Botany 110. Mr. Denniston.

112. Morphology of Bryophytes. II; 3 cr. Prerequisite: Botany 1. Offered 1943-44 and in alternate years. Mr. Allen.

113. Morphology of Pteridophytes. II; 3 cr. Prerequisite: Botany 1. Offered 1942-43 and in alternate years. Mr. Bryan.

117. Structure of Economic Plants. I; 3 cr. Prerequisite: Botany 1. Miss Fisk.

129. Classification of Cultivated Plants. I; 2 or 3 cr. Prerequisite: Botany 1. Miss Fisk.

130. Identification and Classification of Seed Plants. II; 3 or 4 cr. Prerequisite: Botany 1. Mr. Denniston.

131. Dendrology. II; 2 cr. Prerequisite: Botany 1. Mr. Denniston.

146. Plant Physiology. II; 4 cr. Prerequisites: Botany 1 and some elementary knowledge of physics and chemistry. Not open to freshmen. 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. Mr. Gilbert.

154. Evolution of Plants I; 2 cr. Prerequisites: Botany 1 and 2. Offered 1943-44 and in alternate years. Mr. Allen.

156. Inheritance and Variation. II; 2 cr. Prerequisites: Botany 1 and 2. Offered 1942-43 and in alternate years. Mr. Allen.

160. Flora of Wisconsin and Its Conservation. II; 3 cr. Lectures, laboratory and field trips. Prerequisite: Open to advanced students in the natural sciences. Mr. Fassett, Mr. Curtis.

162. Advanced Taxonomy. I; 2-4 cr. Prerequisite: Botany 129 or 130, or 160. Offered 1943-44 and in alternate years. Mr. Fassett.

163. Identification and Classification of Grasses. I; 2 cr. Prerequisite: Botany 129 or consent of instructor. Mr. Fassett.

164. Principles of Plant Ecology. II; 3 cr. Lectures, laboratory and field trips. Prerequisites: Botany 1 and sophomore standing. 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. Mr. Fassett, with cooperation of the department.

166. Plant Conservation. I; 1 or 2 cr. Problems and methods in the preservation and restoration of the native flora. Prerequisite: Botany 164, or consent of instructor. Not offered 1942-43. 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. Not offered 1942-43. 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. See Section 20, page 57. Staff.

200. Research. Yr; *cr. Investigation may be undertaken in any department of botany in which the student's preparation is adequate. Staff.

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 1942-43 and in alternate years. Mr. Gilbert.

221. Classification of Parasitic Fungi. Yr. *cr. Offered 1943-44 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 1942-43; given for 2 lecture credits only.) Mr. Duggar.

248. Physiological Methods and Materials. I; 3 cr. Prerequisite: Botany 146. Mr. Duggar, Mr. Stauffer, and assistant.

249. Special Physiology of Pathogenic Fungi. II; 2-4 cr. Prerequisite: Botany 146. Lectures, reports; lab. optional. Mr. Duggar.

250. Cytology. Yr; 5 cr. Prerequisites: Botany 1 and 2. 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. 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, Hall, Krauskopf, Mathews, *chairman*, McElvain, Meloche, Schuette, Walton, Williams; Associate Professor Sorum; Assistant Professors Hirschfelder, Holt, Johnson, Klein, Wilds, Willard; Instructors Hesse, Ihde, Larsen, Osborne, Robinson.

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. 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. Mr. Walton, Mr. Krauskopf and staff.

2a*. General Chemistry. I; 4 cr. For freshmen in engineering only. 2 hrs. lecture, 4 hrs. lab., 1 hr. quiz. (Repeated second semester.) Mr. Holt and staff.

2b. General Chemistry and Qualitative Analysis. II; 4 cr. Continuation of Chemistry 2a, which is prerequisite. Mr. Holt, and staff.

3. Qualitative Analysis. II; 1 cr. Prerequisite: Concurrent registration in Chemistry 1b or 4b. Required of all chemistry course students. Mr. Walton and staff.

4a*. General Chemistry. I; 5 cr. For the following students: chemistry course, chemistry majors, chemical engineers. May be elected by students majoring in the applications of chemistry, for example biochemistry and bacteriology, or consent of instructor. 2 hr. lecture, 4 hr. lab., 1 hr. quiz. (Repeated as 1a second semester.) Mr. Sorum and staff.

4b. General Chemistry and Qualitative Analysis. II. Continuation of 4a. Prerequisite: 1a, 2a, 4a, or equivalent. Mr. Sorum and staff.

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. 3-9 hrs. lab. Mr. Hall and staff.

12. Quantitative Analysis. I; 3 cr. For agricultural students only. Prerequisite: General chemistry, including qualitative analysis. 5 hrs. lab. Mr. Meloche and staff.

14. Quantitative Analysis. I; 5 cr. For engineering students only. Prerequisite: General chemistry, including qualitative analysis. 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. Not open to students who have had 1a, 2a, or 4a. Staff.

99. Special Chemical Problems. I, II; 2-4 cr. Staff.

100. Senior Thesis. Yr; 2-3 cr. Staff.

106. Advanced Analytical Practice. I, II; *cr. Prerequisite: Chemistry 11b. Special analytical techniques including microscopic and other instrumental methods. Mr. Meloche.

107. History of Chemistry. I; 2 cr. Prerequisites: Chemistry 11, 120, or consent of instructor. Offered in 1942-43 and alternate years. Mr. Hall.

108. Advanced Qualitative Analysis. Yr; 2-5 cr. Prerequisite: Chemistry 1b. Offered 1942-43 and in alternate years. 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. Mr. Schuette.

116. Industrial Organic Analysis. I, II; *cr. Prerequisites: Chemistry 11a and 120a. Mr. Schuette.

117. Inorganic Preparations. I, II; 1-5 cr. Prerequisite: Chemistry 1b or 2b. Mr. Meloche.

118. Iron and Steel Analysis. I, II; 2-5 cr. Prerequisite: Chemistry 11 or 14 Mr. Meloche.

* 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.

119. Organic Analysis. I; 3 cr. An introduction to the methods for quantitative determination of elements and functional groups. Prerequisites: Chemistry 11a and 120a. 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, Mr. Klein and Mr. Johnson.

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. 3-8 hrs. Mr. Klein and staff.

121b. Organic Chemistry. II; 1-3 cr. Prerequisite: Credit or concurrent registration in 120b. 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. 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. 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. Osborne 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. 3 to 8 hrs. Mr. Daniels, Mr. Osborne and staff.

133. Photochemistry. I; 2 cr. Prerequisites: Chemistry 130 and 131. Offered 1942-43 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. Prerequisite: Chemistry 120a. Mr. Schuette.

147. Chemistry of Foods and Their Adulteration. II; 1-3 cr. A laboratory course to accompany, if desired, Chemistry 146. Prerequisites: Chemistry 11a and 146 or concurrent registration in Chemistry 146. 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 1943-44 and in alternate years. Mr. Williams and staff.

149. Colloid Chemistry. I; 2 cr. Prerequisites: Chemistry 130 and 131. Mr. Williams.

151. Advanced Inorganic Chemistry. Yr; 2 cr. Mr. Hall and Mr. Holt.

153. Advanced Instrumental Analysis. I, II; *cr. Prerequisite: Chemistry 131. Mr. Meloche.

155. Advanced Quantitative Analysis. I; 2 cr. Offered 1943-44 and in alternate years. Mr. Hall.

161. The Phase Rule. II; 2 cr. Offered 1943-44 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. 57.)

200. Research in Chemistry. Yr; *cr. 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, Mr. Strong.

230. Advanced Physical Chemistry. Yr; 3 cr. Prerequisites: Chemistry 130 and 131. I, Mr. Daniels; II, Mr. Osborne.

234. Advanced Theoretical Chemistry. Yr; 2 cr. Prerequisite: Chemistry 230. Offered in 1943-44 and in alternate years. Mr. Hirschfelder.

236. Chemical Kinetics. II; 2 cr. Offered 1942-43 and in alternate years. Prerequisite: Chemistry 130. Mr. Daniels.

239. Seminary in Physical and Colloid Chemistry. Yr; 1 cr. Prerequisite: Chemistry 130. Mr. Mathews, Mr. Daniels, Mr. Williams, Mr. Osborne.

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. Willard, Mr. Larsen, Mr. Ihde.

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 45. The normal preparation for the intermediate examination in Greek includes Greek 1 and 10; in Latin, Latin 1, 10 and 11. For the proficiency examination in Greek it includes Greek 1, 10, 20, and 106 or 108; in Latin, Latin 1, 10, 11, 21, and 31 or 32.

Major. In Greek, 28 credits, exclusive of Greek 1; in Latin, 30 credits beyond Latin 1b (or two years of high-school Latin), 22 credits beyond Latin 11 (or four years of high-school Latin). For admission to a Greek or Latin major a student must have secured a grade-point average of at least 1.5 in his college Greek or Latin courses, and must present 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. Knowledge of the languages is not required, and in courses 37-122 no foreign-language credit is given.

37. Latin and Greek Words in English. II; 2 cr. An analysis of the meaning of English words, including the vocabulary of science, in terms of Greek and Latin derivation. Open only to students, including freshmen, who have had no Latin or Greek. Mr. Heironimus.

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 1942-43 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 1942-43 and in alternate years. Mr. Winspear, Mr. Wallace.

51. CLASSICAL MYTHOLOGY. I; 2 cr. A survey of classical myths and their influence on later literature and art. Open to freshmen. Offered 1943-44 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 1942-43 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 1943-44 and in alternate years. Mr. Winspear.

GREEK

1. ELEMENTARY GREEK. Yr; 4 cr. Study of forms and syntax, translation of easy Greek prose. Mr. Agard.

10. HOMER, PLATO, NEW TESTAMENT. Yr; 3 cr. Selections from Homer's *Iliad,* Plato's *Dialogs,* the *New Testament.* 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. The sources for Greek fifth-century history. Prerequisite: Greek 20 or concurrent registration. Offered 1942-43 and in alternate years. Mr. Winspear.

108. PLATO. Yr; 3 cr. Prerequisite: Greek 20 or concurrent registration. Offered 1943-44 and in alternate years. Mr. Winspear.

109. ARISTOTLE. Yr; 3 cr. Prerequisite: 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 57.

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 1942-43 and in alternate years. Mr. Dillon.

230. GREEK SEMINARY. Yr; 2 cr. Subject for 1942-43: Euripides. Mr. Winspear. Subject for 1943-44: Homer. Mr. Agard.

LATIN

1a. Elementary Latin. I; 4 cr. Study of forms and syntax, with simple translation, 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.

10. Vergil. I; 4 cr. Selections from the *Aeneid.* Special consideration is given students who have not studied Latin recently. Prerequisite: Latin 1b or two years of high-school Latin. Open to students who have read Cicero, but not to students who have read Vergil. Mr. Wallace.

11. Cicero's Orations. II; 4 cr. Cicero as a politician and literary critic. Special consideration is given students who have not studied Latin recently. Prerequisite: Latin 1b or two years of high-school Latin. Open to students who have read Vergil, but not to students who have read Cicero. Mr. Wallace.

21. General Survey. Yr; 3 cr. (4 cr. for students who include 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 10 and 11 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. Selections illustrating the national experience of the Roman people. Prerequisite: 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. Prerequisite: Latin 32. Given on request. Mr. Wallace.

109. Roman Drama. II; 3 cr. Prerequisite: Latin 32. Given on request. Mr. Wallace.

110. Lucretius. I; 3 cr. The *De Rerum Natura;* its relation to ancient philosophy. Prerequisite: Latin 32. Offered 1943-44 and in alternate years. Mr. Winspear.

111. Vergil. I; 3 cr. Special attention is given to the literary art of the *Aeneid.* Prerequisite: Latin 32. Offered 1942-43 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.* Prerequisite: Latin 32. Offered 1942-43 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 1942-43 and in alternate years. Mr. Heironimus.

119. Tacitus. II; 2-3 cr. The principate of Augustus and Tiberius. Prerequisite: Latin 32. Offered 1943-44 and in alternate years. Mr. Wallace.

130. Medieval Latin. I; 2 cr. Offered 1943-44 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. History and analysis of the Latin language. Offered 1943-44 and in alternate years. Mr. Dillon.

231. LATIN LITERATURE. Yr; 3 cr. A comprehensive survey. In 1942-43, the Early Empire; in 1943-44, the Republic and Late Empire. Mr. Heironimus.

233. LATIN SEMINARY. Yr; 2 cr. Subject for 1942-43: Suetonius. Mr. Heironimus. Subject for 1943-44: The *Monumentum Ancyranum*. Mr. Winspear.

TEACHERS' COURSE

THE TEACHING OF LATIN. See School of Education.

COMMERCE

PROFESSORS AURNER, ELWELL, *chairman*, GLAESER, TAYLOR, TRUMBOWER; ASSOCIATE PROFESSORS FELLOWS, FOX, GAUMNITZ, GIBSON; ASSISTANT PROFESSORS HENSEY, LINS; LECTURER PETERSON; INSTRUCTORS KUBLY, REITER, 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. 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. 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. 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. 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. 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. 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. Mr. Elwell, Miss Lins.

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* 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.

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. 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 Commerce 9, and registration in the School of Commerce. Mr. Elwell, Mr. Reiter.

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. 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. 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. Not offered 1942-43. Mr. Peterson.

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.

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, Securities and Exchange Commission and State Securities Commission requirements. Prerequisite: Commerce 184.

BANKING AND FINANCE

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: 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 financial implications. Prerequisite: Commerce 105. Given alternately with Commerce 154. Mr. Morton.

137. Corporation Finance. I; 3 cr. Business units, especially corporate, in present-day enterprise; financial principles applicable to their operation. Prerequisites: Economics 1a and Commerce 9. Mr. Taylor.

158. Large-Scale Enterprise. II; 3 cr. The business policy of large-scale units. Prerequisite: Commerce 137. Mr. Taylor.

191. Central Banking. II; 3 cr. Functions of central banks, the operation of the Federal Reserve System, the Bank of England, nature and objectives of credit policy. Prerequisite: Commerce 105. (Given alternately with Commerce 192.) Mr. Morton.

192. Monetary Economics. II; 3 cr. Monetary standards, the value of money, monetary equilibrium, employment, output and prices, international equilibrium, rates of exchange, monetary policy and public finance. Prerequisite: Commerce 105. (Given alternately with Commerce 191.) Mr. Morton.

205. BANKING AND MONETARY THEORY. Yr; 2 cr. Monetary policy, prices, capital formation, and economic activity. Liquidity, solvency, the gold standard, managed currency, stability, inflation and deflation. Prerequisites: Graduate standing, Commerce 191 and a course in economic theory. (Given alternately with Economics 204.) Mr. Morton.

237. SEMINAR IN FINANCE. Yr; 2 cr. Individual research, class reports, and group discussion. Prerequisite: 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. Mr. Fox, Mr. Kubly.

COMMERCIAL LAW

109a. COMMERCIAL LAW. I; 3 cr. History of legal development, contracts, agency, negotiable instruments and sales. Prerequisites: Registration in School of Commerce and senior standing or consent of instructor. Mr. Schuck.

109b. COMMERCIAL LAW. II; 3 cr. Insurance, real estate and personal property, partnerships, corporations, bankruptcy. Prerequisite: Commerce 109a. Mr. Schuck.

FOREIGN TRADE

151. LATIN AMERICA. I; 3 cr. The economic development and relations of Latin America. Prerequisites: Economics 1a and junior standing. Mr. Ellsworth.

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. Ellsworth.

157. INTERNATIONAL ECONOMIC POLICY. II; 3 cr. Controlled international trade. Critical examination of various forms of interference with freedom of trade. Significance of controlled trading systems. Post-war problems of economic reconstruction. Prerequisite: Commerce 156. Mr. Ellsworth.

251. SEMINARY IN AMERICAN FOREIGN POLICY, ECONOMIC AND POLITICAL. I, II; 2 cr. Prerequisite: Graduate standing or consent of instructor. Not offered 1942-43.

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 57. 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.

INDUSTRIAL MANAGEMENT

11. INDUSTRIAL MANAGEMENT. I, II; 3 cr. The scientific management movement; location and layout of industrial plants; types of organization; standards of operation; purchasing and inventory control; wage payment plans; production control; research and inspection problems. Prerequisites: Econ. 1a and junior standing. Mr. Kubly.

MARKETING

*6. BUSINESS COMMUNICATION. 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. 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. 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.

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 the 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-descipline in distributive enterprise. This course is required of every marketing major. Prerequisites: Commerce 170 or 114, 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. 1; 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.

* 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.

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 or consent of instructor. Mr. Gaumnitz.

154. RISK AND PROFIT. I; 3 cr. Nature of economic risk; relation to profit. Causation, prediction, probability. Functions and operations of the price system. Capital theory. A functional explanation of variations in business profits. Prerequisite: Commerce 105. (Given alternately with Commerce 133.) 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. Not offered 1942-43. 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. 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. Mr. Fox.

196. Advanced Statistical Technique. I; 3 cr. Intermediate and advanced methods of analyzing data. Prerequisite: A course in statistics. 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. Mr. Fox, Mr. Gaumnitz.

See also:
Math. 118—Probability and statistics.
Math. 135—Introduction to statistical methods in the natural sciences.
Math. 137—The mathematics of statistics.
Math. 238—The mathematics of economic statistics.

COMPARATIVE LITERATURE

Professors Buck, *chairman*, Dillon, Haugen, Pochmann, Rogers, Cool; Associate Professor Fulcher; 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 bulletin 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 21, Greek 20, English 34, French 21, German 22, 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 in the Department of Comparative Literature the student is asked 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 1943-44 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 1942-43 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 1942-43 and in alternate years. Mrs. Alberson.

102. Renaissance Epic and Romance. II; 3 cr. Epic and related forms, the romance and pastoral, their development in Latin, Italian, Portuguese and French, and their culmination in Ariosto, Tasso, Spenser and Milton. Offered 1942-43 and in alternate years. Mrs. Alberson.

127. Contemporary Poetry. (See English 127.)

140. Modern Irish Poetry. I; 2 cr. A survey of Irish poetry from Thomas Moore to Yeats and his successors. Mr. Dillon.

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 1942-43 and in alternate years. Mr. Cool.

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 1942-43 and in alternate years. Mr. Buck.

171. Comedy. II; 3 cr. Critical study. Prerequisite: At least one foreign language required. Offered 1942-43 and in alternate years. Mr. Buck.

173. Literary Type: Biography. I; 3 cr. The history of the development of biography; followed by a comparative study of the varieties of modern biographical writing. Offered 1943-44 and in alternate years. Mrs. Alberson.

174. Autobiography. II; 3 cr. A study of the world's great autobiographies. Offered 1943-44 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 1943-44 and in alternate years. Mr. Buck.

178. The Contemporary Scene. Yr; 3 cr. A study of the literary movements in Europe and America since the First Great War. Offered 1943-44 and in alternate years. Ability to read at least one foreign language required. Mr. Buck.

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 57.

181. Proseminary. Yr; *cr. Individual studies for seniors. Prerequisite: Consent of instructor. Mrs. Alberson.

184. German-American Literary Relations. (See English 184.)

201. Seminary, Aspects of Recent Literary 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 Boccacio; the second semester begins with the Renaissance authors and ends with Pirandello. No language prerequisite. Mr. Russo.

55. Spanish and Portugese 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 wih seleced representative masterpieces. Lectures, class discussions, and supplementary readings. No language prerequisite. Mr. Oelschlager.

71. Literature of the Vikings. (See Scandinavian Languages 71.)

75. German Classics in Translation. Yr; 2 cr. Selected masterpieces of German literature in English. Lectures, assigned readings, discussions, and topics. First semester, the *Nibelungenlied* to Shiller; second semester, Goethe to modern times. Offered 1943-44 and in alternate years.

77. Norwegian Literature from Renaissance to Realism. (See Scandinavian Languages 77.) Mr. Haugen.

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, Leonard, Twaddell; Associate Professors Herriott, Kasten; Assistant Professor 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 155.)

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. Not offered 1942-43. 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 1943-44 and in alternate years. Mr. Herriot.

210. Philological Seminary: Old Spanish. Yr; 2 cr. Offered 1942-43 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

Professors Ellsworth, Glaeser, Groves, Hobson, Kiekhofer, Lescohier, *chairman*, McNall, Morton, Perlman, Taylor, Trumbower, Wehrwein, Witte; Associate Professors Anderson, Bakken, Earley, Fox, Froker, Gaumnitz, Mortenson, Parsons, Schaars; Assistant Professors Salter, Skaug; Lecturer Brandeis; Instructors Bridgman, Kubly.

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 I-IX 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, I-IX into which the work of the department is divided. Economics 1a and 1b and Economics 30 cannot be included in this minimum of three courses.

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 115-116 of this announcement. Professor A. Hobson is in charge.

INDUSTRIAL RELATIONS. The Department of Economics has arranged a sequence of courses helpful to students preparing 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.

ACTUARIAL SEQUENCE. Students interested in a combined sequence in economics, commerce, and mathematics preparatory for examinations of the actuarial societies should consult Professor E. A. Gaumnitz.

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.

INDEPENDENT WORK

100. SENIOR THESIS. Yr; 2 cr. Staff.

180. INDEPENDENT WORK IN ECONOMICS. I, II, or Yr; *cr. See page 57 of this bulletin for requirements and procedures. Staff.

200. GRADUATE THESIS. Yr; *cr. Staff.

280. INDEPENDENT WORK. I, II, or Yr; *cr. Prerequisites: Graduate standing and consent of major professor. Staff.

I. 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.

131. Wages and Prices. II; 3 cr. (See Group VI. Labor.)

147. Problems of a War Economy. I; 3 cr. (See Group IV. Finance.)

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. The second semester is carried on at a somewhat more advanced level than the first. Undergraduates and graduates with little theoretical background are advised to choose the first semester. Prerequisite: Graduate standing or senior standing with major in economics or commerce. Mr. Earley.

154. Risk and Profit. I; 3 cr. (See Group V. Insurance.)

156. International Trade. I; 3 cr. The principles underlying the movements of trade and allocation of resources among nations. Prerequisites: Economics 1a and junior standing. Mr. Ellsworth.

166. Economics of Population. II; 3 cr. (See Group IX. Special Courses.)

175. Business Cycle Policies. II; 3 cr. Emphasis on European, especially Scandinavian writers. Prerequisite: Economics 1b or 105. Mr. Skaug.

176. Industrial Fluctuations. I; 3 cr. Types of fluctuations of economic activity; their characteristics and significance. An examination of the leading theories of business cycle control. Prerequisite: Economics 1a and junior standing. Economics 105 recommended. Mr. Ellsworth

192. Monetary Economics. II; 3 cr. (See Group IV. Finance.)

201. Development of Economics. Yr; 2 cr. A critical survey of economic thought from the mercantilists to recent writers. Prerequisite: 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.

204. Economic Method. Yr; 2 cr. The structure of economic thought; its logic, psychology, aim, purpose, and content. Application of operational methods and procedures to economic problems. Prerequisite: Graduate standing. (Given alternately with Economics 205.) Mr. Morton.

205. Banking and Monetary Theory. Yr; 2 cr. (See Group IV. Finance.)

218. Institutional Economics. I; 3 cr. (See Group III. Economic History and Institutions.)

221. Land Income. I; 3 cr. (See Group II. Agricultural Economics.)

229. Seminary in Advanced Agricultural Economics. II; 3 cr. (See Group II. Agricultural Economics.)

250. Seminary in Economic Theory. Yr; 2 cr. Critical discussion of debatable topics in the field of economic theory, particularly value, distribution, and prices, together with reports on recent or contemporary theories and theorists. Prerequisite: Graduate standing and consent of instructor. Mr. Kiekhofer.

II. AGRICULTURAL ECONOMICS

117. Outlines of Land Economics. I; 3 cr. Economic principles underlying the utilization and conservation of land or natural resources. Prerequisite: Agr. Econ. 1 or Econ. 1b. 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: 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.

162. Agricultural Policies. II; 2 cr. An analysis of governmental aids to agriculture in the United States and abroad. Prerequisite: Senior standing. Mr. Hobson.

179. Urban Land Economics. II; 3 cr. Urbanization, location of industries and cities, urban land utilization, position of the city in our economy. Prerequisite: Econ. 117 or consent of instructor. Mr. Wehrwein.

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 and Mr. Salter. Crop and livestock estimating and agricultural data, Mr. Anderson and 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 and Mr. Salter.

228. Seminary in Theory of Markets and Marketing. I; 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 1942-43 and in alternate years. Mr. Bakken.

229. Seminary in Advanced Agricultural Economics. II; 3 cr. The field of agricultural economics with respect to its origin and the main issues. Mr. Parsons.

225. 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 consent of instructor. Offered 1943-44 and in alternate years. Mr. Mortenson.

III. ECONOMIC HISTORY AND INSTITUTIONS

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 capitalism, industrial capitalism, finance capitalism, and management capitalism viewed as institutional frameworks for economic activity. Prerequisites: Economics 1a and junior standing. Mr. Perlman.

133. Financial History of the United States. I; 3 cr. (See Group IV. Finance.)

134. 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.

144. Capitalism and Socialism. II; 3 cr. (See Group VI. Labor.)

145. American Labor History. II; 3 cr. (See Group VI. Labor.)

146. Government and Business. I; 3 cr. General survey of governmental activities affecting business with emphasis upon aspects not dealt with in other courses. Prerequisite: Economics 1b. Mr. Witte.

152. Farmer Movements. I; 3 cr. (See Group II. Agricultural Economics.)

158. Large-Scale Enterprise. II; 3 cr. The business policy of large-scale units. Prerequisite: Economics 137 or consent of instructor. Mr. Taylor.

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.) Prerequisite: Graduate standing. Mr. Glaeser.

220. Governmental Economic Problems. Yr; 2 cr. Current economic problems confronting government and industries. Prerequisite: Graduate standing or consent of instructor. Mr. Witte.

258. Imperfect Competition and the Law. I; 2 cr. For the duration of the war subjects such as wartime price control and industrial regulation are to be treated. Prerequisite: For Economics students Economics 150 or its equivalent. Mr. Bunn, Mr. Earley, and Mr. Stedman.

IV. FINANCE

103. Fiscal Policy. II; 3 cr. Social Security taxes; revenue other than taxes; federal-state-local fiscal relationships; public expenditures; public debts; war finance problems. 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. Mr. Taylor.

147. Problems of a War Economy. I; 3 cr. Economic causes of war. Peacetime vs. war economy. Building a war economy. Price, profit and income stabilization. Plant expansion, priorities, rationing. Post-war economic problems. Prerequisite: Economics 1a. Mr. Earley.

153. International Finance. 3 cr. Prerequisite: Economics 1b or 105. Mr. Ellsworth.

158. Large-Scale Enterprise. I; 3 cr. (See Group III. Economic History and Institutions.)

191. Central Banking. II; 3 cr. Functions of central banks, the operation of the Federal Reserve System, the Bank of England, nature and objectives of credit policy. Prerequisite: Economics 105. (Given alternately with Economics 192.) Mr. Morton.

192. Monetary Economics. II; 3 cr. Monetary standards, the value of money, monetary equilibrium, employment, output and prices, international equilibrium, rates of exchange, monetary policy and public finance. Prerequisite: Economics 105. (Given alternately with Economics 191.) Mr. Morton.

205. Banking and Monetary Theory. Yr; 2 cr. Monetary policy, prices, capital formation, and economic activity. Liquidity, solvency, the gold standard, managed currency, stability, inflation and deflation. Prerequisites: Graduate standing, Economics 191 and a course in economic theory. (Given alternately with Economics 204.) Mr. Morton.

224. Seminary in Public Finance. Yr; 2 cr. Alternating annually: 1. Legal problems in public finance. (1942-43.) 2. Public finance theory. 3. Public finance literature. Prerequisite: Graduate standing and 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.

253. Seminary in International Finance.

V. INSURANCE

120. Social Security. I; 3 cr. (See Group VI. Labor.)

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 or consent of instructor. Mr. Gaumnitz.

154. Risk and Profit. I; 3 cr. Nature of economic risk; relation to profit. Causation, prediction, probability. Functions and operations of the price system. Capital theory. A functional explanation of variations in business profits. Prerequisite: Economics 1b or 105. (Given alternately with Economics 133.) Mr. Morton.

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.

See also Mathematics 24, Theory of Life Insurance.

VI. LABOR

119. EVOLUTION OF INDUSTRY. I; 3 cr. (See Group III. Economic History and Institutions.)

120. SOCIAL SECURITY. II; 3 cr. (2 credits only for those who have had Economics 123.) Deals with all aspects of social security, including old age pensions, health insurance, unemployment insurance. Prerequisite: Economics 1b. Mr. Witte.

122. LABOR PROBLEMS. I; 3 cr. The efficiency-consciousness of management and the job-consciousness of unionism. The labor movement as a "going government". Types of "industrial government": "Welfare capitalism", compulsory arbitration, and management-union agreements. Prerequisites: Economics 1a and junior standing. 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. 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. The American labor movement's historical experiment with the temper of the American community, the political and legal institutions and with the psychology of labor. Labor's contribution to collective democracy. Prerequisites: Economics 1a and junior standing. Mr. Perlman.

149. GOVERNMENT AND LABOR. I; 3 cr. Basic and current problems in labor relations legislation, general labor legislation, and social insurance. Prerequisite: Economics 120 or Economics 123 or consent of instructor. Mr. Witte.

171. PERSONNEL MANAGEMENT. I, II; 3 cr. Prerequisite: Economics 1a or a major in industrial education or engineering. Mr. Leschoier.

172. FOREMANSHIP. I, II; 1 cr. Prerequisite: Concurrent registration in Economics 171 or 11. Mr. Lescohier.

174. THE LABOR MARKET. I; 3 cr. An analysis of problems centering around employment and unemployment. Prerequisite: Economics 1a. Mr. Lescohier.

220. GOVERNMENTAL ECONOMIC PROBLEMS. Yr; 2 cr. (See Group III. Economic History and Institutions.)

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; 1-2 cr. Mr. Feinsinger, Mr. Rice, Mr. Perlman, Mr. Witte and Mr. Garrison.

274. SEMINARY IN THE LABOR MARKET. 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, development 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. 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. Mr. Gaumnitz.

130. Statistical Methods. I; 3 cr. Elementary statistics for graduate students. Prerequisite: Graduate standing. 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. Mr. Fox.

196. Advanced Statistical Technique. I; 3 cr. Intermediate and advanced methods of analyzing data. Prerequisite: A course in statistics. 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. Mr. Fox, Mr. Gaumnitz.

See also:

Math. 118. Probability and Statistics.
Math. 135. Introduction to Statistical Methods in the Natural Sciences.
Math. 137. The Mathematics of Statistics.
Math. 238. The Mathematics of Economic Statistics.
Soc. 232. Advanced Social Statistics.

IX. SPECIAL COURSES

11. Industrial Management. I, II; 3 cr. Scientific management movement; location and layout of industrial plants; types of organization; standards of operation; purchasing and inventory control; wage payment plans; production control; research and inspection problems. Prerequisites: Economics 1a and junior standing. Mr. Kubly.

143. Problems of Structural Change in the American Economy. I; 3 cr. Theories of location of economic activities. Problems of regional economic developments. Prerequisites: Economics 1a and junior standing. Mr. Skaug.

151. Latin America. I; 3 cr. The economic development and relations of Latin America. Prerequisites: Economics 1a and junior standing. Mr. Ellsworth.

157. International Economic Policy. II; 3 cr. Controlled international trade. Critical examination of various forms of interference with freedom of trade. Significance of controlled trading systems. Post-war problems of economic reconstruction. Prerequisite: Economics 156. Mr. Ellsworth.

166. Economics of Population. II; 3 cr. Interrelations between population developments and economic developments. Economic effects of migration, changes in the size and composition of populations, economic aspects of population theories. Prerequisites: Economics 1a or Sociology 1 or 2 and junior standing. Mr. Skaug.

167. Population Policies. Population policies in various countries. Quantitative and qualitative bases. Standards of living concepts in population policy. Migration policies. Prerequisites: Economics 1a or Sociology 1 or 2 and junior standing. Mr. Skaug.

173. Economics of Consumption. II; 3 cr. Relations between consumption and saving and social income and its fluctuations. Efforts to improve position of consumers. For the duration of the war, problems of consumption in wartime (e.g. price control, rationing, conservation, and standardization) will receive primary attention. Prerequisite: Economics 1b or consent of instructor. Mr. Earley.

179. Urban Land Economics. II; 3 cr. (See Group II. Agricultural Economics.)

267. Seminary in Population Problems. Yr; 2 cr. Prerequisite: Graduate standing. Mr. Skaug, Mr. McCormick.

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 this Announcement 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 Cassidy, Doran, Gray, Thomas, Wales; Instructors Cameron, Doremus, Evans, Jacobs, Knipp, Lacy, Rutledge, Shudofsky, Spears, 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: 57, 129, 131, 156, 157, 160, 161, 162; (e) not more than two of the following (one will suffice): 132, 134, 135, 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), (d), and (e) 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-points per credit for the first four semesters and the written recommendation of three sophomore instructors. See section 20, page 57. 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 wek. 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. Taylor.

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.

INTRODUCTORY LITERATURE COURSES

Students may fulfill the B. A. requirement of 6 credits in sophomore literature by taking one of the courses hereinafter described—30, 32, 33, 40. In order to complete the sophomore requirement, a student must carry one of these courses for two semesters; 30 and 33 may not both be taken for credit.

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. Prerequisite: English 1b or grade of A in 1a or exemption 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. Prerequisite: English 1b or grade of A in 1a or exemption from English 1. Enrollment limited to 125. Mr. Fulcher and staff.

33. INTRODUCTION TO ENGLISH LITERATURE. Yr; 3 cr. A non-chronological course in English literature, with emphasis upon some ten great writers. Prerequisite: English 1b or grade of A in 1a or exemption from English 1. Mr. Quintana and staff.

40. AMERICAN LITERATURE. Yr; 3 cr. An introductory survey of the major spokesmen of Americanism. Prerequisite: English 1b or grade of A in 1a or exemption from English 1. Mr. Clark, Mr. Pochmann, and staff.

ENGLISH LANGUAGE AND LITERATURE

37. SHAKESPEAREAN DRAMA. Yr; 3 cr. 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. Either 57 or 157 (which see) is offered yearly. Mr. Quintana.

68. The Novel in the Modern World. Does not give credit in English. (See Comparative Literature 68.) Mr. Fulcher.

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 1942-43. Miss Thornbury.

105. British Drama 1660-1825. I; 3 cr. Not offered 1942-43. Miss Thornbury.

106. British Drama 1825 to the Present. II; 3 cr. Not offered 1942-43. Miss Thornbury.

112. Hawthorne and Mark Twain. I; 3 cr. Offered 1943-44 and in alternate years. Mr. Pochmann.

114. Emerson and Poe. I; 3 cr. Offered 1942-43 and in alternate years. Mr. Pochmann.

115. Burns. I; 3 cr. Offered 1942-43 and in alternate years. Mr. Leonard.

116. English Literary Criticism of the Romantic Era. I; 3 cr. Offered 1942-43 and in alternate years. Mr. Roe.

117. English Literary Criticism of the Victorian Era. II; 3 cr. Offered 1942-43 and in alternate years. 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. Offered 1943-44 and in alternate years. Mr. Leonard.

126. Byron and the Minor Poets. II; 3 cr. Not offered 1942-43. Mr. Thomas.

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. Social Ideas in Victorian Prose. II; 3 cr. Offered 1943-44 and in alternate years. Mr. Roe.

133. Shelley and Keats. I; 3 cr. Not offered 1942-43. Mr. Thomas.

134. The Romantic Movement. I; 3 cr. Mr. Roe.

135. The Victorian Era. II; 3 cr. Mr. Roe.

136. Elizabethan Drama Including Shakespeare. Yr; 3 cr. Twenty-three plays by Shakespeare and fifteen of the best plays by his contemporaries. Mr. Eccles.

137. Shakespeare. Yr; 3 cr. About half the plays of Shakespeare are read, eight of them being studied in detail. Prerequisite: Senior standing or consent of instructor. Miss Doran.

138. English Prose Style. Yr; 2 cr. Offered 1942-43 and in alternate years. Mr. Taylor.

139. The English Novel. Yr; 3 cr. Richardson to Meredith. Offered 1943-44 and in alternate years. Mr. Fulcher.

140. Spokesman of American Ideals. II; 3 cr. Offered 1942-43 and in alternate years. Mr. Clark.

141. Tennyson and Browning. II; 3 cr. Not offered 1942-43. Mr. Thomas.

143. Familiar Essay. I; 2 cr. Offered 1943-44 and in alternate years. Mr. Taylor.

144. Wordsworth and Coleridge. I; 3 cr. Offered 1943-44 and in alternate years. Mr. Roe.

147. English Essayists. II; 2 cr. Offered 1943-44 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 the standpoint of general human interest. Miss Wales.

150. American Fiction. I; 3 cr. Includes both novels and short stories, with some emphasis on the West. Mr. Clark.

154. Carlyle and Ruskin. I; 3 cr. Mr. Roe.

155. Arnold and Pater. II; 3 cr. Mr. Roe.

156. Early Seventeenth Century. II; 3 cr. Miss Wallerstein.

157. Milton. II; 3 cr. Either 157 or 57 (which see) is offered yearly. 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. Not offered 1942-43. Mr. Thomas.

173. The Rise of a National Literature in America, 1775-1836. II; 3 cr. Offered 1943-44 and in alternate years. Mr. Clark.

174. Major American Prose Writers. II; 3 cr. Mr. Pochmann.

179. Social Ideals in English Letters. II; 3 cr. Not offered 1942-43. Miss Thornbury.

180. Reading for Honors. Normally 2 cr. a semester. See section 20, page 57. For further information consult Professor Quintana.

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 English language in America will be assigned one credit of extra work each semester. Mr. Hanley.

191. Literature of Colonial America. I; 3 cr. Mr. Pochmann.

200. Research in English. Yr; cr. to be arranged. Mr. Quintana and staff.

202. Main Problems of Scholarship in One of the Fields of English Literature. Sem.; 3 cr. Offered from time to time. Consult current time table.

209. Milton. Sem.; 3 cr. Offered from time to time. Consult current time table. Mr. Hughes.

210. Seminary in One of the Older Fields in English Literature. Yr; 2 cr. Offered from time to time. Consult current time table.

215. Burns. Problems of Dialect and Social and Literary Background. Sem.; 3 cr. Offered from time to time. Consult current time table. Mr. Leonard.

227. History of the English Language. Yr; 2 cr. Mr. Leonard.

232. Seminary in Chaucer. Yr; 2 cr. Mr. Leonard.

234. Seminary in Nineteenth Century English Literature. Yr; 2 cr. Offered from time to time. Consult current time table.

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 in American Literature. Yr; 2 cr. Offered yearly. Consult current time table.

244. Advanced Seminary in English Literature. Yr; 2 cr. Offered yearly. Consult current time table.

248. Bibliography and Methods of Research. I; 3 cr. A course designed to train graduate students in the processes of literary investigation. Offered yearly. Consult current time table. Miss Doran.

TEACHERS' COURSE

For 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 1943-44 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 1943-44 and in alternate years. Miss Richards.

FRENCH AND ITALIAN

Professors Cheydleur, Rogers, Schlatter, Smith, *chairman*, Zdanowicz; Associate Professors Gillen, Harris, Michell, Russo; Assistant Professors Bandy, Leveque, Mercier, Milligan, Rossi; Instructors Bottke, Galpin, Kroff, Luzenska, Palmeri, Pauly, Renouard, 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 45 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 58.

MAJOR. In French, 28 credits in advance of 1b, including thesis or substitute. In Italian, 24 credits in advance of 1b. Students may take in the senior year, 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. Requests 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.

12. SECOND-YEAR FRENCH READING AND ORAL WORK. I, II; 3 cr. Dealing especially with diplomatic, military and mechanical terms. Open to students who have had French 10a, or 1b with grade of A. Equivalent to French 10b. (Not open to students taking French 13.) 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.

20. THIRD-YEAR FRENCH FOR TRANSLATORS. I, II; 3 cr. For those preparing for Government service, stressing especially technical and other difficult terms. Parallel to French 21. Mr. Milligan.

25. INTERMEDIATE COMPOSITION AND CONVERSATION. Yr; 2 cr. Prerequisite: French 15 or grade of B in 10b. 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.

120. ADVANCED FRENCH TRANSLATION. Yr; 2 r 3 cr. Emphasis upon accurate rendering of typical material in different fields. Intended for those preparing for Government service. Prerequisite: Three years of college French or consent of instructor. Mr. Bandy.

124. COMPOSITION AND CONVERSATION. Yr; 2 cr. Prerequisite: French 25 or grade of A in 15. 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 1943-44 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 1943-44 and every third year. Mr. Harris.

273. Romance Philology. Yr; 2 cr. Offered 1944-45 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 10b or four years of high-school French. 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. Not offered 1942-43. 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 Voltair, Diderot, Rousseau. Mr. Michell.

133. Victor Hugo. II; 2 cr. Offered 1943-44 and every third year. Mr. Michell.

134. Balzac. II; 2 cr. Offered 1944-45 and every third year. Mr. Michell.

136. French Novel from the Seventeenth Century to the Twentieth. Yr; 3 cr. Offered 1943-44 and in alternate years. Mr. Cheydleur.

137. Molière. I; 2 cr. Offered 1943-44 and in alternate years. Mr. Zdanowicz.

139. French Literature of the Seventeenth Century. Yr; 3 cr. Conducted in French. Offered 1943-44 and in alternate years. M. Lévêque.

145. French Literature of the Sixteenth Century. Yr; 2 cr. Offered 1942-43 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. Not offered 1942-43.

180. Advanced Independent Reading. For upper-group majors complying with conditions of section 20, page 57. 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.

242. Old French Epic Poetry. Yr; 2 cr. The history of the Chanson de Geste traced, and several representative poems read during the year. Offered 1943-44. Mr. Smith.

243. Seminary, Old French Literature. Yr; 2 cr. A general survey of the Arthurian Cycle; with special emphasis on Chrétien de Troyes, Marie de France, and the Tristan Legend. Offered 1942-43. Mr. Harris.

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 1943-44 and every fourth year. Mr. Smith.

250. The Renaissance in France. Yr; 2 cr. Development of the Renaissance spirit and its manifestation in France, with special study of some representative 16th-century author. Offered 1944-45 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 1944-45 and every third year. Mr. Smith.

254. Seminary, French Literature. Yr; 2 cr. The growth of Classicism and its general spirit, with special study of some representative author each semester. Offered 1943-44 and in alternate years. Mr. Zdanowicz.

254. Seminary, French Literature. Yr; 2 cr. Realism and Naturalism in the French drama. Offered 1942-43 and in alternate years. Mr. Smith.

255. Seminary, Twentieth-Century French Literature. Yr; 2 cr. Representative authors of the 20th century. Offered 1942-43 and every third year. Mr. Cheydleur.

256. Seminary, Pre-Romanticism. Yr; 2 cr. Offered 1943-44 and in alternate years. Mr. Michell.

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. Russo.

10a. Third-Semester Italian. I; 3 cr. Prerequisite: Italian 1b or two years of high-school Italian. Mr. Rossi.

10b. Fourth-Semester Italian. II; 3 cr. Prerequisite: Italian 10a or three years of high-school Italian. Mr. Rossi.

15. Elementary Composition and Conversation. Yr; 2 cr. Grammar review with oral and written exercises. Supplementary course to be taken with Italian 10a and 10b or with the consent of instructor. Mr. Russo.

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. Not offered 1942-43.

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 1945-46 and every fourth year. 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 1945-46 and every fourth year. Mr. Rossi.

123. Italian Drama. Yr; 3 cr. The development of Italian drama from its origin to the present. Offered 1945-46 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 1942-43 and in alternate years. Mr. Rossi.

136. Italian Novel. Yr; 3 cr. The short story and the novel from the *Novellino* to Pirandello. Offered 1943-44 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 1942-43 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 1944-45 and every fourth year. Mr. Russo.

172. Early Italian Writers. II; 2 cr. The Italian literature before Dante. Offered 1944-45 and every fourth year. Mr. Russo.

GEOGRAPHY

PROFESSORS FINCH, *chairman*, HARTSHORNE, TREWARTHA, WAIBEL (visiting); ASSISTANT PROFESSORS DURAND, STERLING; INSTRUCTOR RANDALL.

The distinctive field of geography is the study of the earth's surface, and the individual elements, both natural and cultural, of which it is 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 emphasizsd. 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 49.

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. Geography 1 is not prerequisite to Geography 2. 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. Mr. Durand and staff.

5. PHYSICAL EARTH AND ITS RESOURCES. 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. 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. Mr. Trewartha.

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 1941-42 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 or science 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, Mr. Randall.

6. World Survey of Human Geography (Regional). 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 freshmen. 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, Mr. Waibel.

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. Not offered 1942-43. Mr. Finch.

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, Mr. Waibel.

110. Geography of the Far East. II; 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, Mr. Waibel.

114. Geography of Africa. II; 2 cr. Prerequisite: Sophomore standing. Mr. Waibel.

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, Mr. Randall.

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. Randall.

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.

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 57. 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 1942-43. Mr. Durand.

202. LATIN AMERICA. Not offered 1942-43. Mr. Sterling.

203. NORTH AMERICA. Not offered 1942-43. Mr. Finch.

207. THE MEDITERRANEAN REGION. Not offered 1942-43. Mr. Hartshorne.

210. THE FAR EAST. Not offered 1942-43. 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; ASSOCIATE PROFESSOR NEWELL; ASSISTANT PROFESSORS THWAITES, TYLER.

MAJOR. A minimum of 30 credits, including thesis, is required. In addition to formal courses majors in geology are required, beginning in 1943, to prepare a geologic map

and write a report on a field area. 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 mineralogy and geology (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. 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. Mr. McKinstry.

11. MAPPING. II; 1, 3 or 4 cr. Application of plane table and other instruments and aerial photographs to geologic and topographic mapping. 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. Field trips with supplementary laboratory work. Mr. Newell.

19. MILITARY GEOLOGY. II; 3 cr. Mr. Twenhofel and staff.

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. McKinstry.

135. HISTORY OF GEOLOGY. I; 1 cr. Prerequisites: Geology 1 or 9, or Geography 1; senior standing. Offered 1943-44 and in alternate years. Mr. Twenhofel.

180. ADVANCED INDEPENDENT READING. See section 20, p. 57. 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. II; 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 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. Mr. McKinstry.

115. METAMORPHIC GEOLOGY. II; 5 cr. Prerequisites: Geology 1 or 9 and 6 or 7. Offered 1942-43 and in alternate years. Mr. Emmons, Mr. McKinstry, Mr. Tyler.

117. PRINCIPLES OF PRE-CAMBRIAN GEOLOGY. I; 2 cr. Prerequisite: Geology 114. Offered 1942-43 and in alternate years. For field trips see course 125. 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 1942-43. Mr. Leith.

151. GEOLOGY OF MINERAL DEPOSITS. II; 5 cr. Ore 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. Offered 1943-44 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 1942-43 and in alternate years. Mr. Leith.

HISTORICAL GEOLOGY, STRATIGRAPHIC GEOLOGY, PALEONTOLOGY, SEDIMENTATION

22. STRATIGRAPHIC PALEONTOLOGY. I; 3 cr. A study of fossil invertebrates. Prerequisite: Geology 1 or 9. Offered 1942-43 and in alternate years. Mr. Newell.

112. HISTORICAL GEOLOGY AND STRATIGRAPHY. Yr; 3 cr. Prerequisites: Geology 1 or 9, and 22. Offered 1943-44 and in alternate years. Mr. Twenhofel, Mr. Newell.

121. INVERTREBRATE PALEONTOLOGY. Yr; 3 cr. Prerequisite: Geology 1 or 9, and Zoology 1. Offered 1943-44 and in alternate years. 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 1941-42 and in alternate years. Mr. Newell.

123. OIL GEOLOGY. II; 2 cr. Prerequisites: Geology 1 or 9, 114, and senior standing. Offered 1942-43 and in alternate years. Mr. Twenhofel.

133. SEDIMENTATION. Yr; 3 cr. Prerequisites: Geology 1 or 9, 6, 114, and senior standing. Mr. Twenhofel.

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 1943-44 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. Mr. Tyler.

MINERALOGY AND PETROLOGY

6. GENERAL MINERALOGY. Yr; 5 cr. Prerequisite: Chemistry 1 or a high-school course in chemistry. Mr. Winchell, Mr. Emmons.

7. SHORT COURSE IN MINERALOGY. I; 3 cr. 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.

106. GEMS AND PRECIOUS STONES. II; 1 cr. Junior standing. Mr. Emmons.

108. PETROLOGY. Yr; 5 cr. Prerequisite: Geology 6 or 7. 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. Mr. Winchell.

138. MICROSCOPIC IDENTIFICATION OF CRYSTALLINE MATERIALS BY IMMERSION METHODS. I; 4 cr. Prerequisite: Consent of instructor. Mr. Emmons.

139. UNIVERSAL STAGE STUDIES. II; 2 cr. Prerequisite: Geology 108 or 138. Offered 1943-44 and in alternate years. Mr. Emmons.

141. MINERAGRAPHY. II; 2 cr. Prerequisite: Geology 6 or 7. Mr. McKinstry.

GLACIAL GEOLOGY AND PHYSIOGRAPHY

109. GEOMORPHOLOGY. I; 3 cr. Prerequisite: Geology 1, 9, or 17, or Geography 2. Origin of land forms. 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. Mr. Thwaites.

143. GLACIAL GEOLOGY. II; 3 cr. Prerequisite: Geology 1, 9 or 17, or Geography 2. Mr. Thwaites.

GERMAN

PROFESSOR BRUNS, HEFFNER, ROESELER, TWADDELL, *chairman;* ASSOCIATE PROFESSORS ERNST, REHDER; ASSISTANT PROFESSORS KITTEL, WORKMAN; INSTRUCTORS RIEGEL, SALINGER.

For ATTAINMENT TESTS see section 10, page 45. 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 10b 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 10a 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.

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 9 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.

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.

10a. THIRD-SEMESTER GERMAN. I, II; 3 cr. See 4. Prerequisite: German 1b, or two years of high-school German. Several sections.

10b. FOURTH-SEMESTER GERMAN. I, II; 3 cr. See 4. Prerequisite: German 10a, or equivalent. Several sections.

14. PRACTICE READING. I, II; 2 cr. Modern prose. Open only in connection with 10a, 10b, or 20. Not recommended for students planning to take more than 16 credits in German. Several sections.

SPECIAL WAR COURSES

The prerequisite for these courses is: German 10b, or one semester of German 20, or concurrent registration in either. Courses 18 and 19 are designed for students who do not expect to be able to complete the regular four-year course.

15. CONVERSATIONAL GERMAN. I, II; 2 cr.

16. ELEMENTARY MILITARY GERMAN. I, II; 2 cr.

18. ELEMENTARY READINGS IN SCIENTIFIC GERMAN. I, II; 2 cr.

19. ELEMENTARY READINGS IN MEDICAL GERMAN. I, II; 2 cr.

ADVANCED PRACTICE COURSES

25. INTERMEDIATE COMPOSITION AND CONVERSATION. Yr; 3 cr. Prerequisite: German 10b. Required of all teaching majors and minors, unless 112 is substituted. Miss Kittel.

28. SCIENTIFIC GERMAN. Yr; 2 cr. Especially for students of chemistry. Prerequisite: German 10b. Miss Ernst.

29. SCIENTIFIC GERMAN. Yr; 2 cr. Especially for students of medicine. Prerequisite: German 10b. Miss Ernst.

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.**

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. 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. Mr. Rehder.

GERMAN LITERATURE—GROUP A

The courses in Group A are intended primarily for students who have had German 10b. Students having already six credits in advance of German 10b 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 10a; grade-point average of 2 in German. Mr. Twaddell, Mr. Rehder, Mr. Riegel, Mr. Salinger, Mr. Workman, Mr. Heffner.

22. Literature of the 19th and 20th Centuries. Yr; 3 cr. Prerequisite: German 10b.

24. Shorter Masterpieces. I, II; 2 cr. Prerequisite: 14 cr. in German. Several sections.

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.

102. The Classical Period. Yr; 2 or 3 cr. Class reading in drama and lyric. outside reading in the novel, written reports. Miss Kittel.

103. The Nineteenth Century. Yr; 2 or 3 cr. Class reading in drama and lyric, outside reading in the novel, written reports. Mr. Bruns.

104. Contemporary Literature. I; 2 or 3 cr. Class reading in drama and lyric, outside reading in the novel, written reports.

105. Schiller. I; 3 cr. Mr. Workman.

106. Grillparzer. I; 3 cr. Mr. Salinger.

107. Hebbel. II; 3 cr. Mr. Bruns.

108. Keller. II; 3 cr. Mr. Riegel.

109. Hauptmann. II; 3 cr.

GERMAN LITERATURE—ADVANCED COURSES

130. Goethe. Yr; 3 cr. A general study of Goethe's life and works. 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. 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. Mr. Roeseler.

136. Prose Fiction of the Twentieth Century. II; 2 cr. A study of the German *Novelle* in the 20th century. Mr. Roeseler.

140. German Literary Theory and Criticism. I; 2 cr. History of German criticism, with attention to foreign influences upon the theory of literature. Mr. Bruns, Mr. Rehder.

142. The Drama of the Nineteenth Century. Yr; 2 cr. Lectures in German, assigned reading, and semester topics. Mr. Bruns.

149. The Romantic Movement in Germany. I; 3 cr. Literary, philosophical, and artistic tendencies of the Romantic School. Lectures in German; assigned readings. Mr. Rehder.

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 57.

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. I; 3 cr. Prerequisite: German 151. Mr. Twaddell.

220. German Literature 1400-1750. II; 3 cr. The literature of the Renaissance. Reformation, Baroque, and *Aufklärung*. Lectures and readings. 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; 3 cr. Readings, phonology, morphology, dialects. Mr. Heffner.

158. Old Saxon. I; 2 cr. Mr. Twaddell.

191. Phonetics. I; 3 cr. With special reference to the teaching of German. Mr. Heffner, Mr. Twaddell.

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. 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. Mr. Heffner.

270. PHILOLOGICAL SEMINARY. II; 2 cr. Mr. Heffner.

HISTORY

PROFESSORS CURTI, EASUM, HESSELTINE, HIGBY, KNAPLUND, *chairman,* NETTLES, POST, REYNOLDS; ASSISTANT PROFESSORS EDSON, SACHSE; INSTRUCTOR POMEROY.

When history is offered as one of the required studies in the general course leading to the degree of Bachelor of Arts (see page 60), 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 48-50).

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) re-

* Students who take History 3 cannot elect History 1 or 2.

quires 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. Post and staff.

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. Mr. Sachse.

3. EUROPEAN CIVILIZATION SINCE THE FALL OF ROME. Yr; 5 or 4 cr. Introduction to the political, economic, social, and cultural history of modern western civilization. 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. Not offered 1942-43. 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, 1763-1943. Yr; 3 cr. Survey of American social, political, and economic development. Special conference sections on the relations of literature, science, 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 57.

200. Graduate Thesis. Yr; *cr. Staff.

252. Historical Method. Yr; 1 cr. Historical bibliography, sources, criticism, and interpretations of civilization; historiography. Required of first-year graduate students. Not offered first semester 1942-43. Mr. Post and others.

280. Special Work. Properly qualified graduate students may, by agreement with the major professor, 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. During the recesses of the University, this special work is available only to graduate students who have the master's degree or its equivalent.

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 1943-44 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 1942-43 and in alternate years. Mr. Edson.

131. Medieval Civilization. I; 3 cr. The nature and direction of the civilization of the twelfth and thirteenth centuries. Prerequisite: History 1, 3, or 5, or 10, or junior standing. In 1943-44 offered in the second semester. Mr. Post.

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 1942-43. Mr. Reynolds.

133. Economic Life in Europe. See VI, Economic and Social History.

134. The Renaissance. II; 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. Prerequisite: History 1, 2, 3, or 5, or junior standing. Not offered 1943-44. Mr. Post.

141. English Constitutional History. Yr; 3 cr. Government and law of England from the earliest times through the rise of the cabinet system. Prerequisites: History 5; or History 1, 2, or 3, and junior standing. 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. Not offered 1942-43. 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.

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. Post.

IV. MODERN HISTORY

130. Spain and the Spanish Empire. II; 3 cr. Rise and decline of the Spanish Empire in the Old World, from the eleventh to the nineteenth century. Prerequisite: Junior standing or consent of instructor. Mr. Post.

132. History of Italy to the Eighteenth Century. See III, Ancient and Medieval History.

136. History of France. Yr; 3 cr. Rise of the national state and its civilization under the monarchy, 987-1789. Prerequisite: Junior standing or consent of instructor. 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 1943-44 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 1943-44 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 1942-43 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 1942-43 and in alternate years. Mr. Higby.

142a. England Under the Tudors, 1485-1603. I; 3 cr. Political, economic, and social issues and developments; England's commercial expansion and foreign relations; England and the New World; the Renaissance in England. Prerequisite: Junior standing. Offered 1944-45 and every third year. Mr. Sachse.

142b. England Under the Stuarts, 1603-1714. I; 3 cr. Political, constitutional, social, and economic issues and developments; religious thought; experiments in government; foreign relations; rise of political parties. Prerequisite: Junior standing. Offered 1942-43 and every third year. 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. Offered 1942-43 and in alternate years. 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. Prerequisite: History 1, 2, or 3, or junior standing. Not offered 1942-43. Mr. Post.

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 1942-43 and in alternate years. Mr. Easum.

147. Modern Britain, 1815 to the Present. Yr; 3 cr. Economic, social, and political history of the British Isles. Foreign relations and foreign policy. Prerequisite: History 5 or junior standing. Offered 1943-44 and in alternate years. Mr. Knaplund.

164. History of Exploration and Geographical Discoveries, 1200-1700. See III, Ancient and Medieval History.

177. Eighteenth-Century England. I; 3 cr. Political, social, and economic developments, foreign relations, and colonial policy, 1714-1815. Prerequisite: Junior standing. Offered 1943-44 and every third year. Mr. Sachse.

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 1943-44 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. Intellectual and Social History of the United States. 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 1942-43 and in alternate years. Mr. Hesseltine.

115. The American Revolution and the Constitution, 1760-1789. II; 3 cr. Economic, political, and 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 1943-44 and in alternate years. Mr. Hesseltine.

117b. The Constitution in American Development (1835-1944). 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 1943-44 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 1942-43 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. Not offered 1942-43.

120. American Foreign Relations, 1775-1943. 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. Not offered 1942-43.

122a. American Economic Life, 1789-1860. See VI, Economic and Social History.

122b. The Age of Big Business, 1861-1943. See VI, Economic and Social History.

124. Recent History of the United States, 1873-1943. Yr; 3 cr. Economic, social, and political history of the United States from the Panic of 1873 to the present. Prerequisite: Junior standing. Mr. Curti.

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. Curti.

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. Not offered 1942-43.

113. Intellectual and Social History of the United States. Yr; 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. Curti.

122a. American Economic Life, 1789-1860. I; 3 cr. Hamilton's economic programme. Jeffersonian democracy. Economic relations of the United States with Europe, 1790-1815. The period 1815-1860: Growth of manufacturing; the tariff; labor; settlement of the West, public land policy; agriculture; the cotton industry; plantation and slavery; internal trade and transportation; foreign commerce; money and banking; economic issues in politics. Prerequisite: Junior standing. Mr. Nettels.

122b. The Age of Big Business, 1861-1943. II; 3 cr. The period 1861-1900: Business organization, labor, tariff, currency, agriculture, farmers' revolt; economic expansion, 1890-1914; age of credit, 1914-1929; the Great Depression and New Deal; World War II. Prerequisite: Junior standing. Mr. Nettels.

133. Economic Life in Europe. II; 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 1942-43. Mr. Reynolds.

HISTORY OF SCIENCE

ASSISTANT PROFESSOR GUERLAC, *chairman.*

The courses in the History of Science are designed to give a general knowledge of the development of science, its fundamental ideas, its men and its method, to students majoring in the sciences, in philosophy, in history, or the social sciences. An elementary knowledge of at least one science is required and a previous course in history is desirable. No course in this department is open to freshmen.

1. SURVEY OF THE HISTORY OF SCIENCE. Yr; 3 cr. The development of science from antiquity through the nineteenth century. The first semester covers the period from antiquity through the time of Newton; the second, the eighteenth, nineteenth, and early twentieth centuries. Open to sophomores. Mr. Guerlac.

41. AMERICAN SCIENCE AND TECHNOLOGY. Yr; 1 cr. One lecture weekly dealing with the growth of science in the American Colonial Period and in the United States. Lectures must be taken in conjunction either with History of Science 1 or with History 4. Mr. Guerlac.

110. PRO-SEMINARY IN THE HISTORY OF SCIENCE. I, II; 2 cr. Readings and reports on special aspects of the History of Science. Open to seniors. Prerequisite: History of Science 1 or consent of instructor. Mr. Guerlac.

166. SCIENCE AND THE CENTURY OF THE ENLIGHTENMENT. I; 3 cr. The thought of the Enlightenment, from Fontenelle and Newton through the French Revolution; special emphasis on the influence of scientific ideas. Prerequisite: A course in European History. Not offered 1942-43. Mr. Guerlac.

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 45 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 1943-44. 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 1942-43. 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.

140. MODERN IRISH POETRY. I; 2 cr. A survey of Irish Poetry from Thomas Moore to Yeats and his successors. Mr. Dillon.

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. Mr. Dillon.

JOURNALISM

PROFESSORS HYDE, *chairman*, SUMNER, THAYER; ASSOCIATE PROFESSOR PATTERSON; ASSISTANT PROFESSOR DOAN; LECTURER MOORE; INSTRUCTOR FOSS.

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 College of Letters and Science, Agriculture, and Engineering who desire training in journalistic writing.

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. Two lectures and three hours a week on copy desk and in type laboratory. Mr. Doan and staff.

*4. ADVERTISING TYPOGRAPHY. II; 1 cr. Laboratory work in typography of advertisements. Required of students in the Advertising Group. 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. 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. Prerequisites: Journ. 2 and 3 and, preferably, Speech 110. Mr. Doan.

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. Miss Patterson.

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. "Back shop" mechanical laboratory work in Campus printing plant. Mr. Thayer.

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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: Courses 3, 6, 13 and 15 count in the School of Commerce.

108. NEWSPAPER BUSINESS MANAGEMENT. II; 3 cr. Business problems of smaller newspapers. Print shop laboratory work in cost accounting and job estimating. 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. PERIODICAL 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. Doan.

121. INTERPRETING HISPANIC AFFAIRS. Yr; 1 cr. I. Spain, Mr. Engelkirk; II. Spanish America, Mr. Cool.

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.

200. INDEPENDENT RESEARCH. 2-4 cr. Mr. Hyde and staff.

201-220. GRADUATE SEMINARIES. Yr; 2 cr. Four or five seminaries are offered each semester, selected from a list of twenty subjects, in three-year cycle. The seminaries offered in 1941-42 were:

203. SEMINARY. II; 2 cr. Propaganda and the press. Mr. Hyde.

204. SEMINARY. II; 2 cr. Comparative journalism. Mr. Thayer.

206. SEMINARY. I; 2 cr. The law of the press. Mr. Thayer.

208. SEMINARY. Yr; 2 cr. Reader interest surveys. Mr. Sumner.

210. SEMINARY. I; 2 cr. The newspaper and politics. Mr. Hyde.

215. SEMINARY. Yr; 2 cr. Evolution of the feature article. Miss Patterson.

219. SEMINARY. I; 2 cr. Cooperative news-gathering. Mr. Neal.

LATIN

(See Classics, page 102)

* 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: Courses 3, 6, 13 and 15 count in the School of Commerce.

MATHEMATICS

PROFESSORS EVANS, INGRAHAM, LANGER, *chairman*, MARCH, SOKOLNIKOFF; ASSISTANT PROFESSORS EISENHART, TRUMP, ULAM; INSTRUCTORS ALLEN, BRUCK, EVERETT, JOHNSON, KIOKEMEISTER, LADEN, SWAIN, VINOGRADE.

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 trignometry (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; Chemestry 130; Hydraulics 104, 115; Astronomy 6, 101, 102, 116.

Pi Mu Epsilon, a mathematics club, open to undergraduate students interested in the subject, meets twice a month.

ELEMENTARY COURSES

1a. ALGEBRA AND TRIGONOMETRY. 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. (After first semester of 1942-43, Mathematics 1b will be Advanced Algebra and Analytic Geometry.)

1. TRIGONOMETRY. I, 2 cr. Prerequisite: Mathematics 1a. (Intended primarily for upper-class students requiring a course in trigonometry for military needs, but who cannot fit a four-credit course into their programs.)

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.

4. SOLID GEOMETRY AND SPHERICAL TRIGONOMETRY. I, II; 4 cr. Prerequisite: Mathematics 1, 1b, or 3a. (Intended primarily for students who wish to prepare for the Army Air Corps or for the Navy V-1 program.)

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.

36. BIOMETRY. I; 3 cr. Introduction to the logic and use of statistics in the planning, analysis and interpretation of biological data. Prerequisites: Math. 1 or 71 and junior standing. Mr. Torrie.

50. SUB-FRESHMAN ALGEBRA. I; no cr. For students who fail to pass the examination for admission to Math. 51. Mr. Sokolnikoff and staff.

51. ELEMENTARY MATHEMATICAL ANALYSIS. I, II; 5 cr. Required of freshmen in engineering. Mr. Sokolnikoff and staff.

52. ELEMENTARY MATHEMATICAL ANALYSIS. I, II; 5 cr. A continuation of Math. 51. Required of freshmen in engineering. Mr. Sokolnikoff 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. Sokolnikoff and staff.

71. MATHEMATICS FOR AGRICULTURAL STUDENTS. I; 4 cr. For students presenting one unit of algebra for entrance. Mr. Sokolnikoff and staff.

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. Sokolnikoff and staff.

102b. CALCULUS. I, II; 4 cr. Continuation of Math. 102a. Required of all sophomores in engineering. Mr. Sokolnikoff and staff.

103a. CALCULUS. I, II; 3 cr. Prerequisite: Math. 3b.

103b. CALCULUS. I, II; 3 cr. Continuation of Math. 103a.

104a. STATICS. II; 3 cr. The composition and resolution of forces, moments and couples. Conditions of equilibrium, with applications to framed structures, cables, stresses in beams, bending moments, friction, etc. All students of mathematics will benefit by a knowledge of the principles of statics. The course provides an oppor-

tunity for a varied use of algebra, geometry, trigonometry and the elements of the calculus. Students planning to go further into the field of applied mathematics should follow the course by Mathematics 104 (theoretical mechanics) which is concerned with kinematics and dynamics.

104. THEORETICAL MECHANICS. Yr; 3 cr. Statics and dynamics of a particle and of a rigid body. Prerequisite: A year of calculus.

106. ADVANCED ANALYTIC GEOMETRY. II; 3 cr. Advanced topics in plane analytic geometry and a treatment of solid analytic geometry. Prerequisite: Calculus or concurrent registration.

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. Mr. Bruck.

116. HIGHER ANALYSIS. Yr; 3 cr. Not offered 1942-43.

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 1943-44 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.

120. ADVANCED CALCULUS. Yr; 3 cr. Prerequisite: A year course in calculus. Mr. Evans.

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 1942-43 and in alternate years. Mr. Ulam.

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. Prerequisites: Math. 1b or 3b, or 36. Two lectures; 3 hours laboratory. Not offered every year. Mr. Eisenhart.

137. ADVANCED PROBABILITY AND STATISTICS. II; 3 cr. Prerequisite: Math. 118.

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. Not offered 1942-43. 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 1943-44 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. Mr. Ulam.

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 1943-44 and in alternate years. Mr. Langer.

221. THEORY OF FUNCTIONS OF A REAL VARIABLE. Yr; 3 cr. Offered 1942-43 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 1942-43.

230. TOPICS IN THE FOUNDATIONS OF MATHEMATICS. 3 cr. Not offered 1942-43.

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. Not offered 1942-43.

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. Not offered 1942-43. Mr. Ulam.

250. THEORY OF ELASTICITY. Yr; 3 cr. Mr. Sokolnikoff.

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. Everett.

263. HIGHER ALGEBRA. I; 3 cr. Matrices, linear dependence and independence, quadratic and Hermitian forms, elementary divisors, and an introduction to matric equations. Not offered 1942-43.

265. HARMONIC ANALYSIS. Yr; 3 cr. Boundry 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 1942-43 and in alternate years. Mr. Evans.

267. CALCULUS OF VARIATIONS. I; 3 cr. An introductory course devoted to the classical theory and problems. Prerequisite: Differential and integral calculus. Not offered 1942-43. 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 1942-43. 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. Not offered 1942-43.

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.

272. SEMINARY IN ALGEBRA. Yr; 1 or 2 cr. Mr. Ingraham.

273. SEMINARY IN ANALYSIS. II; 2 cr. Mr. Ulam.

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. Not offered 1942-43.

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 prerequisite. Not offered 1942-43. Mr. Langer.

284. SEMINARY IN THE FOUNDATIONS OF MATHEMATICS. II; 2 cr. Not offered 1942-43.

Physics 211. ADVANCED DYNAMICS. Yr; 3 cr. Generalized coordinates, Lagrange's and Hamilton's equations, elements of hydrodynamics and of the theory of elasticity. Not offered 1942-43. 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. Not offered 1942-43. Mr. Sokolnikoff.

Courses in 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

PROFESSORS FINCH, TREWARTHA; LECTURER MILLER, *chairman*.

1. INTRODUCTION TO METEOROLOGY. I; 3 cr. Lectures and laboratory. Prerequisite: Physics 1, 31, or 51-52, or concurrent registration. Mr. Miller.

103. METEOROLOGY. Yr; 3 cr. Dynamics of the atmosphere. Air mass analysis. Prerequisites: Mathematics 112; Physics 115 or concurrent registration. Offered 1942-43 and in alternate years. Mr. Miller.

106. CLIMATOLOGY. Yr; 3 cr. Reduction, mapping, correlation and periodogram analysis of climatological observations. Prerequisite: Economics 30. Offered 1943-44 and in alternate years. Mr. Miller.

110. SYNOPTIC AND AERONAUTICAL METEOROLOGY. II; 1-3 cr. Prerequisite: Same as Meteorology 1. Lectures and laboratory (4 hrs.). Open to Letters and Science students for 3 cr.; lectures only for 1 cr. to students in Mechanical Engineering who elect the Aeronautics option. Not open to students who have had course 1. Mr. Miller.

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. Mr. Trewartha.

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: Geography 140 or consent of instructor. Offered 1943-44 and in alternate years. Mr. Trewartha.

MUSIC

PROFESSORS BRICKEN, *chairman*, BURLEIGH, COON, GORDON, JOHANSEN; ASSOCIATE PROFESSORS CARPENTER, DVORAK, ILTIS, SWINNEY; ASSISTANT PROFESSORS EASTMAN, JONES, LUCKHARDT; INSTRUCTORS STRATMAN-THOMAS, SZPINALSKI; ORCHESTRAL COACHES BARTHEL, PERSSION; LECTURERS BROSA, HALLEUX, PREVOST, SOPKIN OF THE PRO ARTE QUARTET.

See School of Music, page 89, 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.

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, rhythm, dictation, solfeggio, 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. 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. Mr. Luckhardt.

33. HARMONY. Yr; 3 cr. Prerequisite: Music 21b. 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. 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. 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 57. 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. 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. 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. FIRST-YEAR STRINGED AND OTHER ORCHESTRAL INSTRUMENTS. Yr; 2 cr. The study of solo literature written for these instruments, emphasizing performance. Staff.

64. First-Year Organ. Yr; 2 cr. Prerequisite: A satisfactory polyphonic piano technique. Miss Eastman.

71. Second Year Pianoforte. Yr; 2 cr. Prerequisite: Music 61 or equivalent. Staff.

72. Second Year Voice. Yr; 2 cr. Art songs in English and Italian; easy oratorio and operatic airs; ensemble. Prerequisite: Music 62, or equivalent. Mr. Swinney.

73. Second Year Stringed and Other Orchestral Instruments. Yr; 2 cr. Prerequisite: Music 63. Staff.

74. Second Year Organ. Yr; 2 cr. Prerequisite: Music 64. Miss Eastman.

75. Instrumental Class Instruction. Yr; 2 cr. Staff.

76. Conducting. I; 2 cr. Study of rehearsal and baton techniques. Mr. Dvorak.

81. Third Year Pianoforte. Yr; 2-3 cr. Repertoire for teaching and performance. Prerequisite: Music 71. Staff.

82. Third Year Voice. Yr; 2-3 cr. Study of embellishments; arias and art songs in English, Italian, German, or French. Solo appearance. Prerequisite: Music 72. Mr. Swinney.

83. Third Year Stringed and Other Orchestral Instruments. Yr; 2-3 cr. Prerequisite: Music 73. Staff.

84. Third Year Organ. Yr; 2-3 cr. Prerequisite: Music 74. Miss Eastman.

85. Orchestra. Yr; 1 cr. (May be taken for 2 credits by students in the School of Music.) Prerequisite: Ability to play an orchestra instrument well. Membership decided by try-outs. Open to entire student body. Mr. Bricken.

86. 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. Bands. Yr; 1 cr. Prerequisites: Knowledge of some band instrument and consent of instructor. Mr. Dvorak.

91. 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. 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. 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. 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

9a. The Quartets of Haydn and Mozart. I; 1 cr. Descriptive lectures on string quartets of Haydn and Mozart with performances in alternate weeks by the Pro-Arte Quartet. Open to all students and compulsory for music students. Mr. Brosa, Mr. Halleux, Mr. Prevost, Mr. Sopkin, and Mr. Bricken.

9b. The Quartets of Beethoven. II; 1 cr. Descriptive lectures on the string quartets of Beethoven with performances in alternate weeks by the Pro-Arte Quartet. Open to all students and compulsory for music students. Mr. Brosa, Mr. Halleux, Mr. Prevost, Mr. Sopkin, and Mr. Bricken.

20. 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. Open to the general student body. Prerequisite: Sophomore standing. Mr. Johansen.

30. History of Musical Form. I; 2 cr. Historical development of musical forms from folk sources and the early polyphonists. Prerequisites: Music 20b and 21b. 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. Prerequisite: Music 30 or consent of instructor. Miss Thomas.

50. The Classical Period. I; 3 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. Prerequisite: Music 40 or consent of instructor. Mr. Jones.

60. The Romantic Period. II; 3 cr. An analytical study of Beethoven, Mendelssohn, Schubert, Schumann and Brahms through their masterpieces in various fields. Prerequisite: Music 50 or consent of instructor. Mr. Jones.

131. Advanced History of Music. I, II; 3 cr. A minute and critical study of the music and texts of the period. Each of the following periods is a semester course: The Clavecin Period and the Modern French School. Prerequisites: Music 40, 50, and 60 and consent of instructor. Reading knowledge in at least French and German is recommended. Mr. Coon.

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. 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. *cr. Staff.

211. Modern Orchestration. Yr; 2 cr. A further study of modern methods in orchestration. Original work in composition for orchestra will be required. Prerequisites: Graduate standing and 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. The Wagnerian Ring, Early Orchestral Music. Musical Forces up to the Seventeenth Century, Aesthetic Phases of Musical Form, Contemporary American Music, Early Music Theorists. 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. Teaching material and methods; development of curricular courses on college entrance level; 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. Mr. Gordon, Mr. Sur.

PHARMACY

PROFESSORS RICHTMANN, UHL, *chairman;* ASSOCIATE PROFESSOR PARKS; ASSISTANT PROFESSORS BUSSE, DUNKER, WAKEMAN.

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 67.

PHARMACY

1. ORIENTATION IN PHARMACY. Yr; 0-1 cr. Required of freshmen in the School of Pharmacy.

3. GENERAL PHARMACY. I; 2 cr. A course designed to acquaint the student with the theories, manipulations, and arithmetic of pharmacy. Mr. Uhl.

4. GENERAL PHARMACY. II; 4 cr. A continuation of Pharmacy 3; laboratory work dealing primarily with the manufacture of U. S. P. and N. F. galenicals. Mr. Uhl.

20. ELEMENTARY PRESCRIPTION PRACTICE. II; 4 cr. The study and the compounding of simple prescriptions. Prerequisites: Pharmaceutical Chemistry 24, Pharmacy 128. Mr. Busse.

50. HISTORY OF PHARMACY. Yr; 1 cr. Development of pharmacy in the principal countries of Europe and in the United States. Offered 1942-43 and in alternate years. Mr. Richtmann.

51. DRUG STORE PRACTICE. Yr; 1 cr. Lectures and topics ranging from the planning and equipment of a store to salesmanship and the laws governing the practice of pharmacy. Offered 1943-44 and in alternate years. Mr. Uhl and special lecturers.

100. SENIOR THESIS. Yr; 2 cr. Staff.

121. ADVANCED PRESCRIPTION PRACTICE. II; 4 cr. A study of prescriptions with special reference to incompatibilities and the techniques in the proper dispensing thereof. Prerequisites: Pharmacy 20, Pharmacy 147. Mr. Busse.

124. MANUFACTURING PHARMACY (Dispensary Practice). I, II; 2-4 cr. Dispensary problems; hospital practice. Prerequisite: Pharmacy 20. Mr. Busse.

128. PHARMACEUTICAL TECHNOLOGY. I; 4 cr. Preparation of pharmaceutical products. Prerequisites: Pharmacy 3, Pharmacy 4, Pharmaceutical Chemistry 24. Mr. Uhl.

131. ADVANCED PHARMACEUTICAL TECHNOLOGY. I, II; 1-5 cr. Problems in the preparation of pharmaceutical preparations. Prerequisites: Consent of instructor. Mr. Uhl.

147. MATERIA MEDICA. I; 3 cr. The chief physiological effects of drugs with special emphasis on the posology, toxicology and the bio-essay of the official preparations. Prerequisites: Pharm. Chem. 127, Physiology 3. Mr. Busse.

160. PHARMACEUTICAL LITERATURE. Yr; 1 cr. Mr. Richtmann.

200. Research. Yr; 1-5 cr. Staff.

232. Graduate Pharmaceutical Technology. Yr; 1-3 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; 8 cr. An elementary course drawing upon materials for pharmacy and medicine for illustration and emphasizing reactions of pharmaceutical importance. Prerequisite: Chemistry 1b. Mr. Dunker.

100. Senior Thesis. Yr; 2 cr. 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. Mr. Dunker.

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. Mr. Dunker.

129. Synthetic Organic Remedies. Yr; 1-2 cr. Preparation and properties of synthetic organic remedies. Prerequisite: Pharm. Chem. 24 or Chem. 120. Miss Wakeman.

140. Plant Chemistry. Yr; 3 cr. Plant products and plant chemical processes. Prerequisite: Pharm. Chem. 24 or Chem. 120. Miss Wakeman.

145. Pharmaceutical Assaying. I; 4 cr. Quantitative analysis both gravimetric and volumetric as applied to the assay of pharmaceutical materials. Prerequisite: Pharm. Chem. 126 or concurrent registration. Mr. Dunker.

200. Graduate Research. Yr; 1-5 cr. Volatile oils and other subjects, or organic chemistry with special reference to plant chemistry. Staff.

241. Advanced Plant Chemistry. Yr; 2 cr. Staff.

PHARMACOGNOSY

21. Doses of Vegetable and Animal Drugs. I, II; 1 cr. A general consideration of the various items associated with doses of medicines. Prerequisites: Botany 1 Chem. 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.

100. Senior Thesis. Yr; 2 cr. Mr. Richtmann.

110. Sources of Information of Crude Vegetable and Animal Drugs. I, II; 1-5 cr. The use of the library in locating literature relating to drugs. Mr. Richtmann.

112. Pharmacognosy. Yr; 3 cr. Classification of and identification of organisms. yielding vegetable and animal drugs, their nomenclature, structure and products. Prerequisites: Botany 1. 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 112, Botany 1, Chemistry 1. Mr. Richtmann.

130. Cultivation of Medicinal Plants. Yr; 1-5 cr. Mr. Richtmann.

200. Research in Medicinal Plants. Yr; 1-5 cr. Mr. Richtmann.

PHILOSOPHY

PROFESSOR OTTO, *chairman;* ASSOCIATE PROFESSORS BÖGHOLT, GARNETT; ASSISTANT PROFESSORS BURKHARDT, ELY, FRIES, RAMSPERGER, VIVAS; INSTRUCTOR 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 1a, 11, 31, or 41 in the first semester and either 1b, 11, 41, or 132 in the second semester. None of the courses in this department is open to freshmen without special permission..

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.

1a. INTRODUCTION TO PHILOSOPHY. I, II; 3 cr. Critical examination by students of their views about man and his world. Comparison of two philosophical views and examination of ways of reaching dependable beliefs. Prerequisite: Sophomore standing. Mr. Bögholt, Mr. Burkhardt, Mr. Ely, Mr. Fries, Mr. Ramsperger, Mr. Taylor.

1b. INTRODUCTION TO PHILOSOPHY. I, II; 3 cr. A comparative study of a variety of influential views about man and what constitutes a good life in society. Prerequisite: 3 cr. in philosophy. Mr. Bögholdt, Mr. Burkhardt, Mr. Ely, Mr. Fries.

11. ELEMENTARY LOGIC. I, II; 3 cr. Problems and methods of better thinking. Development of skill in detecting the more obvious logical errors. The positive aim is improvement in the student's thinking. Prerequisite: Sophomore standing. Mr. Bögholt, Mr. Burkhardt, Mr. Ely, Mr. Fries, Mr. Garnett, Mr. Otto, Mr. Ramsperger, Mr. Taylor, Mr. Vivas.

25. MAN AND NATURE. II; 3 cr. Some of the great philosophical views which have shaped present conceptions of man and nature. Prerequisite: Sophomore standing. Mr. Bögholt.

28. PHILOSOPHY OF CONTEMPORARY LITERATURE. II; 3 cr. Philosophical analysis of such writers as Dreiser, Hemingway, Lawrence, Huxley, Mann, Malraux, Kafka, etc. Prerequisite: Sophomore standing. Mr. Vivas.

31. HISTORY OF ANCIENT PHILOSOPHY. I; 3 cr. From the Pre-Socratics to Augustine. Particular emphasis on Plato and Aristotle. Prerequisite: Sophomore standing. Mr. Ely.

41. INTRODUCTORY ETHICS. I, II; 3 cr. Theories concerning standards of right and wrong. Application of these to questions of social justice such as property, marriage, the individual and the state. Prerequisite: Sophomore standing. Mr. Garnett.

53. PHILOSOPHY OF THE ARTS. I; 3 cr. The nature of art and of the aesthetic experience, and their relation to other modes of human activity. Prerequisite: Sophomore standing. Mr. Vivas.

100. SENIOR THESIS. Yr; 2 cr. Staff.

106. GERMAN PHILOSOPHERS. II; 3 cr. German thought in the 19th century, especially Fichte, Hegel, Schopenhauer, and Nietzche. Prerequisite: 3 credits in philosophy or consent of instructor. Mr. Burkhardt.

111. SECOND SEMESTER LOGIC. II; 3 cr. Prerequisite: Philosophy 1a or 11. Mr. Bögholt.

120. PHILOSOPHY OF SCIENCE. I; 3 cr. Philosophical assumptions underlying modern science; the place of science in the determination and attainment of human values. Prerequisite: 3 cr. in philosophy or consent of instructor. Mr. Ramsperger.

132. HISTORY OF MODERN PHILOSOPHY. II; 3 cr. From Bacon and Descartes to James and Bergson. Prerequisite: Philosophy 31, or consent of instructor. Mr. Ely.

134. CONTEMPORARY PHILOSOPHY. I, II; 3 cr. One or more present-day philosophers or philosophical movements are selected for study each semester. Prerequisite: 3 cr. in philosophy. Mr. Ramsperger.

135. DESCARTES, SPINOZA, AND LEIBNIZ. II; 3 cr. Principal philosophical works of the outstanding seventeenth century rationalists. Prerequisite: 3 cr. in philosophy and junior standing. Offered 1942-43 and in alternate years. Mr. Ramsperger.

136. BRITISH PHILOSOPHERS. I; 3 cr. The English tradition in philosophy, including Bacon, Hobbes, Locke, Berkeley, Hume and Mill. Prerequisites: 3 cr. in philosophy and junior standing. Mr. Burkhardt.

137. THE PHILOSOPHY OF KANT. II; 3 cr. Prerequisite: Philosophy 132 or consent of instructor. Offered 1943-44 and in alternate years. Mr. Ramsperger.

139. AMERICAN PHILOSOPHERS. I; 3 cr. Jonathan Edwards, Ralph Waldo Emerson, Josiah Royce, William James, John Dewey. Prerequisite: 3 cr. in philosophy. Mr. Otto.

141. THE BASIS OF HUMAN RIGHTS. II; 3 cr. The story of the search by Greeks, Hebrews, and moderns for a rational basis for assertion of the rights of the weak against the strong. Prerequisites: 3 cr. in philosophy and junior standing. Mr. Garnett.

147. PHILOSOPHY OF RELIGION. I; 3 cr. An analysis of religious experience and activity and an examination of the principal religious ideas in the light of modern psychology, philosophy and anthropology. Prerequisite: Junior standing or 3 cr. in philosophy. Mr. Garnett.

150. A PHILOSOPHY OF DEMOCRACY. I; 3 cr. The social philosophy of John Dewey. Prerequisite: 3 cr. in philosophy. Mr. Bögholt.

153. CURRENT PROBLEMS IN AESTHETICS. II; 3 cr. Analysis of current philosophies of art and of criticism. Prerequisite: Philosophy 53 or consent of instructor. Mr. Vivas.

155. REASON IN PHILOSOPHY AND LITERATURE (Santayana). I; 3 cr. Philosophy of George Santayana, with special reference to his views on art, morals, and literature. Prerequisite: 3 cr. in philosophy. Mr. Taylor.

156. REASON IN PHILOSOPHY AND LITERATURE (Aristotle). II; 3 cr. Aristotle and his importance in philosophy and literature. Prerequisite: 3 cr. in philosophy. Mr. Taylor.

158. TYPES OF HUMANISM. II; 3 cr. The philosophy of humanism; with special reference to the so-called classical, neo-Thomian, and the naturalistic types. Prerequisite: 3 cr. in philosophy or consent of instructor. Mr. Otto.

162. IDEALISM AND PRAGMATISM. II; 3 cr. The views of such men as James and Dewey contrasted with those of Berkeley, Bradley, Royce, and Whitehead. Prerequisite: 3 cr. in philosophy or consent of instructor. Mr. Fries.

170. FRENCH PHILOSOPHY: DESCARTES TO BERGSON. I; 3 cr. Survey includes Descartes, Voltaire, Rousseau, Comte, Taine, and Bergson. Prerequisite: 3 cr. in philosophy 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. Prerequisite: Graduate standing or consent of instructor. Staff.

240. METAPHYSICAL SEMINARY. Yr; 2 cr. Prerequisite: Graduate standing or consent of instructor. Staff.

247. ETHICAL SEMINARY. Yr; 2 cr. Prerequisite: Graduate standing or consent of instructor. Staff.

PHYSICS

PROFESSORS BBEIT, INGERSOLL, *chairman*, ROEBUCK, WAHLIN; VISITING PROFESSOR BRILLOUIN; ASSOCIATE PROFESSORS HERB, MACK, ROLLEFSON, STEVE, WINANS; VISITING ASSISTANT PROFESSORS ADLER, FEYNMAN; INSTRUCTOR BEEMAN.

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 have had elementary high-school algebra and plane geometry or their 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.

To be accepted as a major a student must have a grade-point average of 1.5 or better in the university mathematics and physics courses he has already taken.

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.) 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. 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. 1 lect.; 4 hrs. lab-quiz. Mr. Mack, Mr. Roebuck, Mr. Beeman.

10. LABORATORY ARTS. I; 1 cr. Glass blowing and shop work. Required for experimental thesis, Physics 100. Prerequisites: Senior standing and consent of instructor. 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. 3 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. 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. 2 lect.; 4 hrs. lab.; 1 quiz. Mr. Ingersoll, Mr. Beeman and staff.

52. General Physics. II; 5 cr. Magnetism, electricity, sound, and light. Continuation of Physics 51. 2 lect.; 4 hrs. lab.; 1 quiz. Mr. Ingersoll, Mr. Beeman and staff.

53. Mechanics. I; 3 cr. Required of sophomores in electrical engineering. 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. 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. 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. 1 lect.; 4 hrs. lab. Mr. Wahlin, Mr. Winans 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. 3 lect.; 4 hrs. lab.; 1 quiz. Mr. Winans and staff.

65. General Physics. Yr; 3 cr. Primarily for students in physical education, pharmacy, medical technology and home economics. 2 lect.; 2 hrs. lab.; 1 quiz. Mr. Winans and staff.

91. Sound. I; 1 cr. 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. 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. 1 lect.-conf.; 4 hrs. lab. Mr. Roebuck, Mr. Beeman, 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. 1 lect.-conf.; 4 hrs. lab. Mr. Roebuck, Mr. Winans, Mr. Beeman.

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 EE1. 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. 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, Mr. Rollefson.

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 1943-44 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. Roebuck.

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 1942-43 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, coupling, isotope effect, continuous spectra, dissociation, molecular constants. Offered 1942-43 and in alternate years. Mr. Winans.

145. Short Radio Waves. I; 2 cr. Propagation and use of short waves, including theory of the magnetron and similar short wave generators. Given 1941-42. Mr. Brillouin.

200. Graduate Research. Yr; *cr. 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 1942-43 and in alternate years. Mr. Breit, Mr. Brillouin, Mr. Adler.

211. Advanced Dynamics. Yr; 3 cr. Generalized coordinates, Lagrange's and Hamilton's equations, elements of hydrodynamics and of the theory of elasticity. Offered 1943-44 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 1943-44 and in alternate years. Mr. Breit, Mr. Brillouin.

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 1943-44 and in alternate years. Mr. Roebuck.

215. Theory of Electricity. Yr; 3 cr. Mathematical treatment of the Maxwell-Lorentz theory of electrodynamics. Offered 1942-43 and in alternate years. Mr. Sokolnikoff.

221. Seminary in Quantum Mechanics. Yr; 1 cr. Discussion of current literature in theoretical physics. Mr. Breit, Mr. Brillouin.

227. Wave Propagation in Crystals. II; 2 cr. Wave propagation in periodic media such as crystals, telephone lines, etc. Offered 1941-42. Mr. Brillouin.

229. Nuclear Physics. II; 2-3 cr. Theoretical discussion of alpha-ray emission, artificial disintegration, beta- and gamma-ray spectra. Offered 1943-44. Mr. Breit.

232. Special Topics in Theoretical Physics. I; 2-3 cr. Discussion of recent developments in quantum theory. Offered 1943-44. 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. Not offered 1942-43. 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. Not offered 1942-43. 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 informaion 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. Not offered 1942-43. Mr. Meek.

POLISH

Assistant Professor 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 45 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; 3 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.

150. History of the Polish Language. II; 2 cr. Primarily for majors in Polish. Prerequisite: Consent of instructor. 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*, Dykstra, Ogg, Witte, Stoke; Associate Professors Pfankuchen, Salter; Assistant Professors Adolfson, Beard, Ebenstein, Skilling.

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.

Majors 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 (4-6 cr.).

American Institutions and International Relations as major fields. Students interested in these major fields are referred to pages 50-53.

Preparation for Positions in the Civil Service. There are courses offered in the department that are prerequisites for a few positions such as that of Junior Administrative Technician, or the Junior grade in the Foreign Service or the home service of the State Department, and in general the ground is laid for interne, apprentice or

fellowship training posts in all levels of government. However, the chief recruitment for the civil service is on the basis of training in specific subject matter fields such as is offered in other colleges and departments. The Department of Political Science is glad to supply students with information concerning entrance qualifications and other aspects of the civil service and aims in its courses to supplement the subject matter courses in other departments with an introduction to the institutional setting of government services.

I. POLITICAL THEORY

101. Introduction to Political Science. I or II; 3 cr. The study of fundamental political ideas and institutions in the light of historical experience and contemporary issues. 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. Ebenstein, 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. Prerequisite: Sophomore or advanced freshman standing. Mr. Stoke and staff.

13. Municipal Government. I; 3 cr. The organization and politics of city government. Prerequisite: Full sophomore standing. Mr. Salter.

103. Fiscal Policy. (See Economics 103).

112. Constitutional Law. I; 3 cr. The American constitution in practice as seen in the jurispudence 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).

126. Legislation. II; 3 cr. Principles, procedures, and problems of statute lawmaking (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. Adolfson.

135. Municipal Administration. II; 3 cr. The functions and structure of municipal administration. Prerequisite: Political Science 7 or 13 or 143, or consent of the instructor. Mr. Beard.

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. Constitutional Background of Social Legislation. II; 3 cr. Prerequisite: Political Science 112 or 115 or consent of instructor. Mr. Pfankuchen.

145. Government and War. I or II; 2 cr. The special problems of government caused by war and the resulting policies, organizations, and procedures. Prerequisite: Junior standing. Mr. Gaus and staff.

146. Government and Business. (See Economics 146).

147. Government and Technology. I or II; 3 cr. Modern technology and the administrative problems it creates for the American government. Prerequisite: Junior standing or consent of the instructor. 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. The Government and Natural Resources. II; 3 cr. The wastage of natural resources are studied as problems of public policy and administration. Prerequisite: Junior standing or consent of instructor. Mr. Pfankuchen.

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. Prerequisite: Junior standing or consent of instructor. 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: Junior standing or consent of instructor. Mr. Ebenstein.

129. The Government of Canada. I, II; 3 cr. An analysis of Canadian problems and policies, including those relating to its external relationships. Prerequisite: Junior standing. Mr. Skilling.

143. Introduction to Public Administration. I, II; 3 cr. The role of administration in modern government; problems of organization, control, personnel, and finance. Prerequisite: Political Science 7. Mr. Gaus or Mr. Beard.

170. The Civil Service. I, II; 3 cr. Analysis of problems of public personnel. Prerequisite: Senior standing. Political Science 143 recommended. Mr. Gaus.

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. Prerequisite: Graduate standing or consent of instructor. 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. Mr. Skilling.

118. Principles of International Law: Survey. I; 3 cr. The rules governing international intercourse, as illustrated in texts and cases. Prerequisite: One course in political science or one in modern history. Mr. Pfankuchen .

119. Principles of International Law: Problems. II; 3 cr. Prerequisite: Political Science 118 or consent of instructor. Mr. Pfankuchen.

120. History of 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.

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 agencies and procedures of international cooperation, with special attention to the role of the United States. Prerequisite: Political Science 25 or consent of instructor. Mr. Skilling.

138. Contemporary Problems in International Relations. II; 2 cr. A pro-seminar 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, Mr. Skilling.

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).

155. Pro-Seminary: The United States and the Far East. I; 2 cr. Mr. Ogg.

251. Seminary in American Foreign Policy. Yr; 2 cr. Staff.

255 Seminary in the Politics of the Pacific. II; 2 cr. Mr. Ogg.

259. Seminary in International Law and Relations. II; 2 cr. Mr. Pfankuchen.

260. Seminary in International Organization. II; 2 cr. Mr. Ebenstein, Mr. Skilling.

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 57.

275. Scope and Methods of Political Science. Yr; 2 cr. Prerequisite: Graduate standing. Mr. Stoke.

PSYCHOLOGY

Proefssors Cameron, *chairman*, Henmon; Associate Professor Harlow; Assistant Professors Brogden, Wickens; Lecturer Ruedisili; Instructor Grant.

The courses offered by the Department of Psychology are designed primarily to meet the needs of the general student desiring a better understanding of himself and of others. The student is introduced to the use of scientific method in the study of human behavior, and is given the opportunity to become acquainted in a variety of fields with the application of psychology to problems of human living. For the major in psychology a well-rounded program is arranged to provide an adequate basis for advanced and for technical psychological work.

Major. In order to major in psychology the student must have at the end of his sophomore year a grade-point average of 1.5. The course requirements for the major call for a minimum of 30 credits taken in the Department of Psychology, including Psychology 1, 25, 105, 130, and at least one course from each of the following groups:

Group I: Psychology 108, 109, 127.
Group II: Psychology 129, 141, 143, 144.
Group III: Psychology 147, 148.
Group IV: Psychology 149, 150.

Students who by their earlier work have demonstrated competence in the field may be permitted or advised to write a thesis, on the basis of which four credits may be earned toward the major requirements.

1. INTRODUCTION TO PSYCHOLOGY. I, II; 3 cr. Development of human behavior in infant and child; motivation, frustration, emotions and bodily functions; intelligent behavior; learning and memory; language and thinking; personality; efficiency, fatigue and morale. Prerequisite: Sophomore standing. Dr. Cameron.

25. EXPERIMENTAL PSYCHOLOGY. I, II; 4 cr. Lectures, demonstrations and experiments. Motor, sensory and nervous system functions; auditory and visual acuity; reflex action and equilibrium; emotion; perception and imagery; learning; speech functions, personality and esthetics. Prerequisites: Psychology 1 and sophomore standing. I, Mr. Brogden; II, Mr. Grant and Mr. Wickens.

50. APPLIED PSYCHOLOGY. II; 2 cr. Vocational guidance and choice; selection of workers; business psychology; personnel; advertising; applications of psychology to professions and national agencies. Prerequisite: Psychology 1. Mr. Grant.

100. SENIOR THESIS. Yr; 2 cr. Independent experimental work on a psychological problem selected by the student, under the direction of a staff member. Prerequisite: Consent of staff member.

105. PSYCHOLOGY OF HUMAN ADJUSTMENT. II; 3 cr. Mental hygiene; personality adjustment and maladjustment; fears, anxiety and compulsions; repression, fantasy and compensation; malingering, hysteria, hypnosis, sleep and dreams; analysis and rehabilitation of personality. Prerequisite: Psychology 1. Dr. Cameron.

106. ABNORMAL PSYCHOLOGY. I; 3 cr. Psychological origins and development of personality disturbances; thinking disorders; delusion and belief; psychology of hallucination; depression, elation and ecstasy; organic factors; modern theories of psychopathology. Prerequisite: Grade of C in Psychology 105. Dr. Cameron.

108. PSYCHOLOGY OF HUMAN EMOTIONS. I; 3 cr. Influence of emotions on goals, customs, interests, learning, reasoning, and behavior problems in children and adults. Prerequisite: Psychology 1. Mr. Harlow.

109. PSYCHOLOGY OF MOTIVATION. II; 3 cr. The origin, differentiation, and transformation of motives, and their influence upon the initiation, direction and maintenance of the behavior of organisms. Prerequisites: Psychology 1 and junior standing. Mr. Brogden .

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. Prerequisites: Psychology 1 and junior standing. Dr. Cameron.

114. ADVANCED APPLIED PSYCHOLOGY. II; 2 cr. Prerequisite: Grade of B in Psychology 50. Mr. Grant.

125. EXPERIMENTAL PSYCHOLOGY OF CONDITIONING, LEARNING AND MEMORY. I, II; 3 cr. Survey of experimental studies; acquisition of verbal and manual habits; problem-solving; biological bases of action; perceptual and imaginal functions. (May be substituted for Psychology 25 by graduate students). Prerequisites: Psychology 1 and graduate standing. I, Mr. Brogden; II, Mr. Grant and Mr. Wickens.

127. PSYCHOLOGY OF PERSONALITY. I; 3 cr. Modern approaches to the static and dynamic organization and development of the personality. Personality measurement by means of testing, scaling, and projective techniques, with applications. Prerequisite: Psychology 1. Mr. Grant.

129. PERSONNEL PSYCHOLOGY. II; 3 cr. Emphasis on industrial applications, selection, classification and placement; techniques of employment interviewing, merit rating, industrial tests (mechanical, clerical, trade, etc.), occupational descriptions, army personnel classification system. Prerequisite: Psychology 1. Mr. Ruedisili.

130. PSYCHOMETRIC METHODS. I; 3 cr. Calculation and interpretation of measures of central tendency, variability, and relationship in psychological research; graphic representation; reliability of statistics from large and small samples. Prerequisite: Psychology 1. Mr. Grant.

135. PSYCHOLOGY OF PUBLIC OPINION. II; 3 cr. Techniques in the measurement of public opinion, political attitudes, and morale; intensity scaling; factors determining opinions and attitudes; field exercises in polling. Prerequisites: Psychology 1 or Sociology 1 or 2, and either Psychology 130 or Sociology 132 or consent of instructor. Mr. Grant.

139. SOCIAL PSYCHOLOGY. I; 3 cr. Typical emotional mechanisms, habits, language and thought patterns in contemporary social life. Prerequisites: Sociology 1 or Psychology 1 or concurrent registration in either; or junior standing and consent of instructor. Mr. Gerth, Mr. Wickens.

141. PSYCHOLOGICAL TESTING. I; 3 cr. Theory and methods of measuring human behavior; survey of representative tests of intelligence, performance, achievement, interests, attitudes, and special aptitudes. Lecture and laboratory. Prerequisite: Psychology 1. Mr. Ruedisili.

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. Prerequisites: Psychology 1 and junior standing. Mr. Henmon.

144. THE PSYCHOLOGY OF LEARNING. I; 3 cr. The original nature of man, experimental studies of learning; mental work and fatigue. Prerequisites: Psychology 1 and 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; learning; social behavior; child personality. Prerequisite: Psychology 1. Mr. Wickens.

148. PSYCHOLOGY OF ADOLESCENCE. II; 3 cr. Intellectual, emotional, and social behavior, and the problems of adjustment to society, which accompany and follow the physiological changes of pubescence and early maturity. Prerequisite: Psychology 1. Mr. Wickens.

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. 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. Mr. Harlow.

152. ANIMAL BEHAVIOR PROBLEMS. I. II; 2 or 3 cr. Individual experimental studies in animal behavior. Prerequisite: Consent of instructor. Mr. Harlow.

154. PHYSIOLOGICAL PSYCHOLOGY. II; 3 cr. The physiological mechanisms determining reflex action, emotions, locomotion, motor skills, thinking, and language. Effect of drugs, internal secretions, and cortical lesions on behavior. Prerequisite: Psychology 1. Mr. Harlow.

161. MODERN VIEWPOINTS IN PSYCHOLOGY. I; 3 cr. Theoretical and systematic psychology as represented by British empiricism, William James, structuralism, functionalism, dynamic psychology, behaviorism, gestalt, and psychoanalysis; current trends in theory and systems. Prerequisite: 7 credits of psychology. 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. Prerequisites: Psychology 1 and junior standing. Mr. Brogden.

180. INDEPENDENT READING. Yr; 1-3 cr. Prerequisites: Graduate major in psychology and consent of instructor. See section 20, page 57. Staff.

185. Problems in Genetic and Adolescent Psychology. I, II; 3 cr. Independent work in problems in child psychology and adolescent psychology under supervision. Prerequisite: Consent of instructor. Mr. Wickens.

190. Problems in Human Behavior. I, II; 3 cr. Independent work in problems of human psychology under the supervision of a member of department staff. Prerequisite: Consent of instructor. Mr. Brogden, Dr. Cameron, Mr. Grant, Mr. Wickens.

200. Research. Yr; *cr. Independent experimental, observational or statistical investigation under the supervision of a staff member. Prerequisite: Graduate standing. Staff.

201. Staff Seminary. Yr; 1 cr. Required of all graduate majors in psychology. Dr. Cameron and staff.

205. Central Nervous System and Behavior. I; 3 cr. Lectures on the role of the central nervous system in relation to sensory processes, learning, thinking, language and emotions. Prerequisite: Psychology 154. Mr. Harlow.

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, in the psychology of learning, or in 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.

225. Advanced Experimental Psychology. II; 3 cr. Lectures, discussions and individual work on selected problems. Prerequisites: Psychology 25 or 125 and consent of instructor. Mr. Brogden.

247. Seminary in Genetic Psychology. I; 2 cr. Prerequisite: Consent of instructor. Mr. Wickens.

254. Seminary in Physiological Problems and Behavior. II; 2 cr. Prerequisite: Consent of instructor. Mr. Harlow.

261. Seminary in Systematic Psychology. I; 2 cr. Prerequisite: Consent of instructor. Mr. Brogden.

SCANDINAVIAN LANGUAGES

Professors Haugen, *chairman*, Leonard; Lecturer Clausen, (1st sem. 1942-43).

The Department of Scandinavian Languages (established in 1875) provides the opportunity for (1) the acquisition of one Scandinavian language (Norwegian) as a tool for further reading in the field; (2) systematic study of the literatures of Scandinavia, both in the original languages and in English; (3) stimulating contact with various aspects of modern and ancient Scandinavian culture through the work of the student Norse Club and the collections of the Department; (4) graduate study and research, particularly in the fields of linguistics and dialectology.

Students in other fields who believe that familiarity with Scandinavian may be helpful are encouraged to consult with the Chairman concerning their problems.

Scandinavian is accepted for foreign-language credit in most undergraduate courses and may be substituted for either French or German by doctoral candidates with the consent of their major professors. Students who wish may take intermediate or proficiency tests to satisfy language requirements. The Department offers an undergraduate major, an M.A., and a Ph.D.

MAJOR. For a major in Scandinavian the student must earn 18 credits beyond second-year Norwegian (or an intermediate reading test), including 4 credits of 80 and a year of Old Norse. A reading knowledge of German is required.

1. BEGINNING NORWEGIAN. Yr; 4 cr. An introduction to the language for students without previous knowledge; open to freshmen. Mr. Haugen.

10. READING NORWEGIAN. Yr; 3-4 cr. Rapid reading of suitable texts by modern writers; open to students who can speak the language or have taken Beginning Norwegian; concentrates on reading knowledge. Mr. Haugen.

21. SURVEY OF NORWEGIAN LITERATURE. Yr; 3 cr. From the eighteenth century to about 1900; major writers from Holberg to Undset. The first semester will be devoted exclusively to the prose plays of Henrik Ibsen. Offered 1944-45. 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 1943-44.

80. SUPERVISED INDIVIDUAL READING. 2 cr. For upper-group students with a good reading knowledge of a Scandinavian language who wish to pursue reading along some special topic. Maximum credit: 6. Mr. Haugen.

163. OLD NORSE. Yr; 3 cr. Introduction to the language of ancient Scandinavia, readings in the Sagas and Eddas, emphasis on philological and literary aspects. Offered 1942-43 by Mr. Leonard, 1943-44 by Mr. Haugen.

164. INTRODUCTION TO SCANDINAVIAN LINGUISTICS. Sem.; 3 cr. History and structure of the Scandinavian languages, with selected readings. Open to graduate students with a reading knowledge of at least one Germanic language besides English. Mr. Haugen.

165. SEMINAR IN MODERN ICELANDIC. Sem.; 2 cr. Graduate students; seniors by consent of instructor. Mr. Haugen.

185. SCANDINAVIAN PHONETICS. 1 cr. Offered in collaboration with Mr. Heffner's course in phonetics. 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.

SCANDINAVIAN CLASSICS IN ENGLISH

These courses do not give language credit. 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.

71. LIFE AND LITERATURE IN THE VIKING AGE. I; 3 cr. The literary monuments of ancient and medieval Scandinavia, particularly Norway and Iceland. Viking society; the runes; Norse mythology; Volsungs and Nibelungs; the poetic Edda; the Sagas. Offered 1942-43. Mr. Haugen.

72. SCANDINAVIAN FOLKLORE AND BALLADRY. I; 2 cr. Popular beliefs in Scandinavia; primitive religion; magic and witchcraft; Christian influences; legends, fairy tales, and ballads; folklore themes in literature. Offered 1943-44. Mr. Haugen.

77. MODERN NORWEGIAN MASTERPIECES. I; 3 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: SOCIAL AND PSYCHOLOGICAL DRAMAS. II; 2 cr. Dramatic work from *A Doll's House* to *When We Dead Awaken.* Discussion of themes, technique, significance. Offered 1942-43. Mr. Haugen.

81. MODERN FICTION. II; 3 cr. Readings from the great Scandinavian novelists: Knut Hamsun, Selma Lagerlöf, Sigrid Undset, Andersen-Nexoe, Jens Peter Jacobsen, and others. Offered 1943-44. Mr. Haugen.

82. THE DRAMA SINCE IBSEN. II; 2 cr. Dramatic literature produced by the contemporaries and successors of Ibsen: Björnson, Strindberg, Heiberg. Offered 1943-44. Mr. Haugen.

SOCIOLOGY AND ANTHROPOLOGY

PROFESSORS BECKER, CAMERON, COLE, GUYER, KOLB, MCCORMICK *chairman*, MATHEWS, PERLMAN; ASSOCIATE PROFESSORS BARTON, DEVINNEY, HILL, MEKEEL, WILEDEN; ASSISTANT PROFESSORS CLARKE, GERTH, HOWELLS, PESSIN, WICKENS; INSTRUCTORS ANDERSON, GRANT, STENEHJEM; LECTURERS BRUBAKER, HILL, NASH, SIEBECKER, WARMINGTON.

Courses in Sociology and Anthropology lead to secondary and college teaching and to public and private research positions. They also supplement training in fields such as law, journalism, business, and social work. For the general student they afford insight into the origins, structure, and working of society, social institutions, and the folkways, and the relation between these and personality.

Anthropology deals also with the antiquity and development of human races, languages and cultures.

The social work courses, together with the background courses in the social sciences, are preliminary to graduate training for positions in the profession of social work, including family and child welfare, medical and psychiatric case work, public welfare, group work, and community organization.

MAJOR

For *sociology* as a field of concentration thirty credits in sociology are required, including courses 1, 2, 132, 140 and Anthropology 3. 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 one three-credit course in sociology in addition to Anthropology 3, 4, 101, 142, and Sociology 1 and 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, and Zoology, ten of which may be in this department.

For *social work* as a field of concentration, if Sociology 148 or Sociology 247 is taken, thirty-four credits are required, including Sociology 1, 2, 3, 132, 140, 150 or 249. Not less than twenty additional credits selected in conference with the adviser must be offered within the Division of the Social Sciences, ten of which may be in this department. Social work students are advised to take Sociology 145, 177, 178 and 190.

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-VIII as described on subsequent pages. Students not writing a thesis must offer three courses in some one of the designated fields.

COURSES OF INSTRUCTION

I. SOCIOLOGICAL THEORY

1. INTRODUCTORY SOCIOLOGY. I; 3 cr. Interrelations of personality, social organization, and culture; major social processes, structures, and institutions. Prerequisite: Sophomore standing. Mr. Becker and staff.

2. Introductory Sociology. II; 3 cr. Introduction to the study of contemporary social problems: nature of social problems; their relation to social change and basic social processes and institutions; examination of selected contemporary problems. Prerequisite: Sophomore standing. Mr. DeVinney and staff.

100. Senior Thesis. Yr; 4 cr. Staff.

139. Social Psychology. I; 3 cr. (See Group VI). Mr. Gerth.

140. General Aspects of Human Relations. I; 3 cr. The social sciences and sociology; value-judgments; methodology; social processes and structures; applications of sociological analysis. Prerequisites: Junior standing and concurrent registration in Sociology 175, or senior standing, or consent of instructor. Mr. Becker.

144. Capitalism and Socialism. II; 3 cr. (This course is listed elsewhere as Economics 144.) Capitalism, unionism, socialism, fascism-naziism 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. Processes of courtship and marriage interaction. Correlation of physiological, psychological, economic, and sociological contributions to marriage and family life. Prerequisite: For sociology majors, one course in sociology or anthropology; for others, junior standing. Mr. Hill and various lecturers.

164. Problems of Racial and Other Minority Groups in the United States. II; 3 cr. Social and economic adjustments between whites, Negroes, Mexicans, Asiatics. Recent Negro migrations to cities. Jews, the foreign-born, war refugees. Prerequisite: Junior standing. Offered 1943-44 and in alternate years. Mr. McCormick.

172. Social Interaction. I; 3 cr. Groups from pairs upward, with functions ranging from reproduction to war, surveyed and analyzed in perspectives of both process and structure. Emphasis on first-hand observation, methods of recording, and sociometric techniques. Prerequisites: Sociology 1 and 2 and Anthropology 3, or junior standing and consent of instructor. Offered 1943-44 and alternate years. Mr. Becker.

173. Social Institutions. II; 3 cr. Customs, usages, conventions, codes, norms, and other phases of society-perpetuating actions and structures. Matrimonial, religious, legal, political, economic, educational, and like functions are distinguished and related to general societal ideologies and patterns. Emphasis on culture case study and valid comparative methods. Prerequisites: Sociology 172 or Anthropology 108, or junior standing and consent of instructor. Offered 1943-44 and alternate years. Mr. Becker.

175. Folklore and Science in Social Thought (Ideologies as Weapons). I; 3 cr. Survey of man's ideas about life with his fellows, centered on important thinkers up to the twentieth century. Stress on social contexts in which these thinkers functioned. Prerequisites: Sociology 1 or 2 or Anthropology 3, or junior standing and consent of instructor. Mr. Becker.

176. Contemporary Analyses of Human Relations. II; 3 cr. Trends of specialized social sciences from nineteenth century onward, with reference to rise of sociology. Chief representatives and schools of sociology and closely related fields such as social psychology and socio-cultural anthropology. Prerequisites: Sociology 140 or 175, or senior standing and consent of instructor. Mr. Becker.

180. Independent Reading in Sociology. I, II; *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 57.

239. Advanced Social Psychology. I; 2 cr. (See Group VI). Mr. Gerth.

255. Seminar: Group Conflict. II; 2 cr. Class struggles; ethnic persecutions, rivalries, and accommodations; minority language revivals and similar cultural reassertions; youth-age conflicts; nationalistic clashes; ideological antagonisms. Offered 1942-43 and in alternate years. Mr. Becker.

257. Sociology of Knowledge. I; 2 cr. Study of ideologies and other kinds of social thought functionally interdependent with social processes and structures. Selected culture cases used as basis for type analysis. Prerequisites: Graduate standing. plus Sociology 175 or Political Science 101 or Philosophy 31 and 132, plus consent of instructor. Mr. Becker.

263. Theories of Social Change. I; 2 cr. Relevant aspects of work on problems of social dynamics by Comte, Spencer, Marx, Veblen, Pareto, Weber, Teggart, Toynbee, and others. Prerequisite: Graduate standing or consent of instructor. Not offered 1942-43. Mr. Becker.

264. Seminar: Marriage and Family. II; 2 cr. Recent research surveyed and analyzed. Prerequisite: Graduate standing or consent of instructor. Not offered 1942-43. Mr. Becker.

279. Systematic Sociology. II; 2 cr. Coordination of current psycho-sociological and sociological theories and methods. Prerequisites: Sociology 140, plus graduate standing and consent of instructor. Mr. Becker.

280. Reading and Research in Sociology. I, II; *cr. Work suited to individual graduate students may be arranged; this may be in conjunction with dissertation. Prerequisite: Advanced graduate standing. Staff.

II. ANTHROPOLOGY

3. 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.

4. Introduction to Ethnology and Social Anthropology. II; 3 cr. A survey of the fields of anthropology dealing with man's culture. Prerequisite: Anthropology 3 or consent of instructor. Mr. Mekeel.

101. American Archaeology. II; 3 cr. Ancient man in the New World and the main pre-Columbian cultures, with particular reference to those of the Pueblo, Aztec, Maya and Inca peoples. Prerequisite: Anthropology 3 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 3 or consent of instructor. Not offered 1942-43. Mr. Howells.

104. Peoples of Asia and Europe. II; 3 cr. A survey of modern and ancient cultures of Asia and Europe. Prerequisite: Anthropology 3 or consent of instructor. Offered 1942-43. Mr. Mekeel.

105. The Indians of North, Central, and South America. I; 3 cr. Origins of the American Indian; development of his culture and descriptions of selected groups. Prerequisite: Anthropology 3 or consent of instructor. Offered 1942-43. Mr. Mekeel.

107. Primitive Religion. II; 3 cr. The origins, elements and forms of primitive religion, with their integration and role in society. Prerequisite: Junior standing or consent of instructor. Mr. Howells.

108a. Field Problems and Methods. I; 3 cr. A survey of social anthropology and sociology focusing on studies of contemporary communities. Prerequisite: Anthropology 4 or consent of instructor. Offered 1942-43. Mr. Mekeel.

108b. Field Problems and Methods. II; 3 cr. Practice in the handling of field problems and techniques. Prerequisites: Anthropology 108a and consent of instructor. Offered 1942-43. Mr. Mekeel.

109. Peoples of the South Seas (Oceania). I; 3 cr. Native races and cultures of the Pacific (with such institutions as tabu in Polynesia, head-hunting in the East Indies, and marriage systems in Australia) as material for the study of cultural development and as an historical problem. Prerequisite: Anthropology 3 or consent of instructor. Offered 1942-43. 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 3 or consent of instructor. Not offered 1942-43.

111. Nature and Function of Language. I; 3 cr. Prerequisite: Junior standing. Not offered 1942-43.

114. Linguistic Structure. I; 3 cr. Prerequisite: Sociology 111 or consent of instructor. Not offered 1942-43.

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 1942-43.

117. Anthropology of Population. I; 3 cr. (See Group VII). Mr. Howells.

142. Human Evolution and 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. The human skeleton and racial types with laboratory training in methods used, and application of such methods to problems in race mixture, human biology, etc. Prerequisite: Anthropology 142 or consent of instructor. Mr. Howells.

180. Independent Reading in Anthropology. I, II; *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 57.

204. Anthropological Problems. I, II; 2 cr. Discussions of current anthropological literature and methods, and work on assigned problems. Prerequisite: Graduate standing or consent of instructor. Not offered 1942-43. Mr. Howells, Mr. Mekeel.

207. Comparative Social Systems. I; 2 cr. Analysis of a few cultures, selected to cover the range of structural complexity from communities dependent on collecting wild foods to modern industrialized communities. Prerequisite: Graduate standing or consent of instructor. Mr. Nash.

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. Offered 1942-43. Mr. Mekeel or Mr. Nash.

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. Mr. Gerth and Mr. Mekeel.

216. Field Methods in Linguistics. II; 2 cr. Prerequisite: Sociology 111 or consent of instructor. Not offered 1942-43.

280. Reading and Research in Anthropology. I, II; *cr. Work suited to individual graduate students may be arranged; this may be in conjunction with dissertation. Prerequisite: Advanced graduate standing. Staff.

III. SOCIAL PATHOLOGY

★40. Health and Disease. I; 2 cr. Lectures, text, assigned readings and reports. Prerequisite: Sophomore standing. Dr. Cole and staff.

141. Poverty and Dependency. I; 3 cr. Poverty and pauperism as social problems; extent; causes; historical methods of treating dependents; special classes as children, aged, mentally deficient, unemployed, etc.; preventive agencies and methods. Prere-

★ Does not count toward a major in sociology or anthropology.

quisites: For Sociology majors, Sociology 1 and 2 or concurrent registration in Sociology 1; for others, junior standing or concurrent registration in Sociology 1. Mr. DeVinney.

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. Mr. DeVinney.

★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. Not offered 1942-43. Mr. DeVinney.

169. PROCESSES OF SOCIAL AND COMMUNITY DISORGANIZATION. I; 3 cr. Underlying factors making for the breakdown of cultural integration and social control, their influence on social and personal disorganization, and their relationship to contemporary social problems. Prerequisite: For sociology majors, Sociology 1 and 2 or concurrent registration in Sociology 1; for others, junior standing or concurrent registration in Sociology 1. Mr. DeVinney.

178. THEORIES OF COMMUNITY ORGANIZATION. II; 2 cr. (See Group VIII). Miss Clarke.

197. PERSONALITY AND SOCIAL STRUCTURE. II; 3 cr. (See Group VI). 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. Not offered 1942-43. Mr. DeVinney and Mr. McCormick.

247. CASE WORK PRACTICE. Yr; 3 cr. (See Group VIII). Mrs. Siebecker.

249. CASE WORK THEORY. Yr; 2 cr. (See Group VIII). 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. DeVinney.

259. DEVELOPMENT OF POOR RELIEF POLICIES. I; 2 cr. Emergence and early development of poor relief policies. Policies and methods of dealing with insecurity in the modern world. Special problems of relief and prevention. Prerequisite: Graduate standing or consent of instructor. Mr. DeVinney.

265. PUBLIC WELFARE ADMINISTRATION. II; 2 cr. (See Group VIII). Miss Clarke.

IV. 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. 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 senior standing. Mr. Barton.

★ For sociology majors may be counted toward 20 hours of related social science, but not toward the 30 credits in sociology.

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: Elementary sociology course or consent of instructor. Mr. Barton.

127. Rural Community Organization. I; 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.

200. Research and Thesis. Yr; *cr. Prerequisite: Advanced graduate standing.

225. Seminar 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, Mr. Hill.

V. STATISTICS

132. Introductory Social Statistics. II; 3 cr. Introduction to the logic and use of statistics as a method of analyzing sociological problems. Prerequisite: Major in sociology or anthropology or consent of instructor. Mr. McCormick.

133. Quantitative Methods in Social Psychology. I; 3 cr. Measurement of personality, group, institutional and community traits, attitudes and standards. Prerequisites: Sociology 132 and 139, or 197. Offered 1942-43 and in alternate years. Mr. McCormick.

232. Intermediate Social Statistics. Yr; 3 cr. I: Theory and practice of sampling, chi-square test, analysis of variance. II: Curve fitting; non-linear, multiple, parital, and qualitative correlation; time series. Problems drawn from sociology. Prerequisite: Sociology 132. Mr. McCormick.

234. Statistics in Population Research. II; 3 cr. (See Group VII). Mr. McCormick.

235. Research in Social Pathology. II; 3 cr. (See Group III). Mr. McCormick and Mr. DeVinney.

236. Statistical Research in Sociology. I; 3 cr. Definition of problem, examination of previous research. Preparation of questionnaire, instructions, tables. Preliminary trials, revision. Organization of field work, editing returns. Hand and machine methods. Analysis and report writing. Prerequisites: Sociology 132, and consent of instructor. Offered 1943-44 and in alternate years. Mr. McCormick.

VI. SOCIAL PSYCHOLOGY

133. Quantitative Methods in Social Psychology. (See Group V).

135. Psychology of Public Opinion. II; 3 cr. Techniques in the measurement of public opinion, political attitudes, and morale; intensity scaling; factors determining opinions and attitudes; field exercises in polling. Prerequisites: Psychology 1 or Sociology 1 or 2, and either Psychology 130 or Sociology 132 or consent of instructor. Mr. Grant.

137. Social Movements and Personal Values. I; 3 cr. Competition for prestige; class interests and institutionalized loyalities; types of leaders; internalization and propagation of values in different social structures. Prerequisite: Sociology 1. Mr. Gerth.

139. Social Psychology. I; 3 cr. Typical emotional mechanisms, habits, language and thought patterns in contemporary social life. Prerequisites: Sociology 1 or Psych. 1 or concurrent registration in either; or junior standing and consent of instructor. Mr. Gerth, Mr. Wickens.

197. Personality and Social Structure. II; 3 cr. A comparative analysis of character formation in select social structures and institutions. Prerequisites: Sociology 1 and junior standing. 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). Mr. Gerth and Mr. Mekeel.

237. Psychology of Public Opinion and Leadership. I; 2 cr. A social-psychological 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 consent of instructor. Mr. Gerth.

239. Personality Problems. II; 2 cr. Selected topics which relate the development of personality to social-cultural environment. Prerequisites: Graduate standing and consent of instructor. Mr. Gerth.

VII. POPULATION

★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.

117. Anthropology of Population. I; 3 cr. Vital statistics and factors controlling population in primitive cultures. Techniques of anthropology applied to problems of mental ability, criminality and vitality in relation to race, physique and environment. Prerequisite: Sociology 1 or 2, or 142. Mr. Howells.

142. Human Evolution and Racial History. I; 3 cr. (See Group II). Mr. Howells.

143. Advanced Physical Anthropology. II; 3 cr. (See Group II). Mr. Howells.

160. Marriage and Family. II; 3 cr. (See Group I). Mr. Hill and lecturers.

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 1943-44 and in alternate years. Mr. McCormick.

164. Problems of Racial and Other Minority Groups in the United States. II; 3 cr. (See Group I). Mr. McCormick.

166. Economics of Population. II; 3 cr. Interrelations between population developments and economic developments. Economic effects of migration, changes in the size and composition of populations, economic aspects of population theories. Prerequisites: Sociology 1 or 2 or Economics 1a and junior standing. Mr. Skaug.

167. Population Policies. I; 3 cr. Population policies in various countries. Quantitative and qualitative bases. Standard of living concepts in population policy. Migration policies. Prerequisites: Sociology 1 or 2 or Economics 1a and junior standing. Mr. Skaug.

174. The Modern City. I; 3 cr. Urban institutional and personality patterns, folkways, and mores. Ecological process and structure. The city as center of dominance over a trade area and hinterland. Prerequisite: Junior standing. Offered 1942-43 and in alternate years. Mr. McCormick.

234. Statistics in Population Research. II; 3 cr. Correction of basic data. Refined measures of fertility, marriage, population increase, etc. Construction and use of life tables. Migration, post-censal population estimates, vital phenomena and business cycles. Prerequisites. Sociology 132 and preferably 163. Offered 1942-43 and in alternate years. Mr. McCormick.

267. Seminary in Population Problems. Yr; 2 cr. Prerequisite: Graduate standing. Not offered 1942-43. Mr. McCormick and Mr. Skaug.

VIII. SOCIAL WORK

Helen I. Clarke in Charge

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

★ For sociology majors may be counted to 20 hours of related social science, but not toward the 30 credits in Sociology.

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 students who wish to take field work courses in their senior year are expected to take Sociology 145, 177, 178, 190, and are advised to take Sociology 162. If students carefuly 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 Department and obtaining related courses in the other 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 following 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	3	Psych. 1—Introduction to psychology	3
Zool. 1—Animal biology	5	Soc. 2—Introductory sociology	3
Soc. 1—Introductory sociology	3		
Soc. 25—Rural life	3		
Physiol. 17—Survey of physiology	4		
Pol. Sci. 13—Municipal government	2		
Anthro. 3—Introduction to anthropology	3		

JUNIOR YEAR

Soc. 139—Social psychology	3	Soc. 132—Introductory social statistics	3
Soc. 141—Poverty and dependency	3	Soc. 160—Marriage and family	3
Soc. 145—Introduction to the field of social work	2	Soc. 144—Capitalism and socialism	3
Psych. 106—Abnormal psychology	3	Soc. 161—Criminology and penology	3
Pol. Sci. 134—Rural local government	2	Soc. 197—Personality and social structure	3
Econ. 120—Social security	3	Educ. 120—Child development: the psychology of adolescence	3
Econ. 122—Labor problems	3		
Econ. 171—Personnel management	3		
Educ. 119—Child development	3		

SENIOR YEAR

Soc. 125—Rural social trends	3	Soc. 127—Rural community organization	2
Soc. 140—General aspects of human relations	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	Soc. 250—Psychiatry for social workers	2
Soc. 249—Case work theory	2	Soc. 265—Public welfare administration	2
Econ. 123—Labor legislation	3	Econ. 124—Taxation	3
Pol. Sci. 143—Introduction to public administration	3	Econ. 149—Government and labor	2
Pol. Sci. 139—State government	3	Educ. 181—Vocational and educational guidance techniques	2–3

‡ Which of these two is selected depends upon the field for which the student is preparing.

145. INTRODUCTION TO THE FIELD OF SOCIAL WORK. I; 2-3 cr. Fields and methods of social work. For social work students and those preparing for allied professions as law, medicine, ministry, teaching. Field trips are arranged for 3 credit students. 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, Sociology 145, 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 and staff.

150.* GROUP WORK AND RECREATION THEORY. Yr; 2 cr. Importance and meaning of group experience. Methods and objectives of group work and recreation agencies. 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 (Consult Miss Clarke). Miss Brubaker.

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 145, senior standing, or consent of instructor. 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 and consent of instructor. Miss Clarke, Mr. Warmington.

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 (Consult Miss Clarke. 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. Prerequisites: Graduate or senior standing, and consent of instructor; concurrent registration in Sociology 249. Field practice and conferences to be arranged. Mrs. Siebecker.

249.* CASE WORY THEORY. Yr; 2 cr. Methods and objectives of case work. Study of records illustrating various problems, as illegitimacy, unemployment, domestic disharmony, juvenile delinquency. Prerequisites: Section a: Graduate or senior standing and consent of instructor. Designed primarily for students not taking field work or expecting to go into social work. Section b: Sociology 145 and concurrent registration in Sociology 247, or consent of instructor. Miss Clarke.

250. PSYCHIATRY FOR SOCIAL WORKERS. II; 2 cr. 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.

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* Sociology majors who are admitted to Sociology 148 (Group Work and Recreation Practice) are required to take Sociology 150 (Group Work and Recreation Theory). Sociology majors who are admitted to Sociology 247 (Case Work Practice) are required to take Sociology 249 (Case Work Theory). Sociology majors who take either of these two sequences are required to have 124 credits in order to graduate. Those who, for any reason, take only one semester of either sequence may graduate with 122 credits.

Causes, diagnosis, treatment methods, and social implications of neuroses, psychoneuroses, organic and functional psychoses. Prerequisite: Social work experience or senior standing. (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. Prerequisites: Graduate standing or Sociology 177 and consent of instructor. Miss Clarke.

SPANISH AND PORTUGUESE

PROFESSORS BERKOWITZ, COOL; ASSOCIATE PROFESSORS HERRIOTT, *chairman*, CASALDUERO (visiting), KASTEN, NEALE-SILVA; ASSISTANT PROFESSORS LYON, OELSCHLAGER; LECTURER SOLALINDE; INSTRUCTORS HESSE, MULVIHILL.

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, 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 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 these 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 112, 117, 124, 127, and 190, for which the prerequisite is three years of college Spanish; 112 and 124 offer 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 128 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 45. The foreign-language requirements for the B.A. degree are set forth in section c, page 58.

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 (112, 117, 124, 127, 128, 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 pages 48-50.

MAJOR IN INTERNATIONAL RELATIONS. (Specialization in the Latin-American region.) Students interested in this major field should consult page 51.

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.

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 twice a month during the year and presents interesting programs. A number of Spanish plays are 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 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. Mr. Oelschläger and staff.

1b. SECOND-SEMESTER SPANISH. I, II; 4 cr. Prerequisite: Spanish 1a or one year of high-school Spanish. Mr. Oelschläger and staff.

10a. THIRD-SEMESTER SPANISH. I, II; 3 cr. Prerequisite: Spanish 1b or two years of high-school Spanish. Mr. Oelschläger and staff.

10b. FOURTH-SEMESTER SPANISH. I, II; 3 cr. Prerequisite: Spanish 10a or three years of high-school Spanish. Mr. Oelschläger 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 27. 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, 112 or 117. Mr. Lyon, Sr. Neale-Silva, Mr. Oelschläger.

27. SPANISH COMMERCIAL LETTER WRITING. I, II; 2 cr. Prerequisite: Consent of instructor. Mr. Cool.

ADVANCED PRACTICE COURSES

(Prerequisite: Three years of college Spanish with at least one semester of 25 recommended.)

112. Composition and Conversation. Yr; 2 cr. Mr. Oelschläger.

117. Commercial and Industrial Language Practice in Hispanic Countries. II; 2 cr. Mr. Oelschläger.

124. Advanced Composition and Conversation. Yr; 2 cr. Prerequisite: Spanish 112 or graduate standing. Sr. Neale-Silva.

127. Advanced Spanish Grammar. I; 2 cr. Mr. Lyon.

190. Spanish Phonetics. II; 2 cr. Theory of Spanish sounds with practical training in pronunciation. Mr. Lyon.

TEACHERS' COURSE

Teaching of Spanish. See School of Education.

PHILOLOGY

128. Spanish Historical Grammar. Yr; 2 cr. An introductory course in Spanish philology, phonology, morphology, and syntax. Prerequisite: Three years of college Spanish. Offered 1943-44 and in alternate years. Mr. Herriott.

201. Methods of Investigation and Bibliographical Information. Yr; 2 cr. Spanish paleography, problems of textual criticism and bibliographical research. Required of candidates for the doctorate. Offered 1942-43. Mr. Kasten.

210. Philological Seminary: Old Spanish. Yr; 2 cr. Offered 1942-43 and in alternate years. Mr. Kasten.

CIVILIZATION

47. Spain and Spanish America of Today. Yr; 2 cr. Readings and illustrated lectures on the social, economic, and political conditions in Spain and Spanish America. Prerequisite: Spanish 10b. I, Spain, Mr. Berkowitz; II, Spanish America, Sr. Neale-Silva.

150. Spanish Civilization. Yr; 2 cr. Conducted in Spanish; illustrated lectures. Prerequisite: Spanish 21. Offered 1943-44.

151. Spanish-American Civilization. Yr; 2 cr. Conducted in Spanish; illustrated lectures. Prerequisite: Spanish 21. Offered 1942-43 and in alternate years. Sr. Neale-Silva.

Reporting Hispanic Affairs. Sr, Neale-Silva and Mr. Cool. 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; readings, discussions, and literary history. Prerequisite: Spanish 10b or equivalent. Mr. Col, Mr. Berkowitz, Mr. Hesse, Mr. Herriott, Mr. Mulvihill, Mr. Oelschläger.

80. Supervised Individual Reading. Yr; 2 cr. Not open to Spanish Majors. For information see the Chairman of the Department of Spanish and Portuguese.

100. Thesis. Yr; 2 cr. Mr. Herriott and staff.

131. Advanced Survey of Spanish Literature. Yr; 3 cr. Offered 1942-43. Mr. Berkowitz.

132. Survey of Medieval Literature. Yr; 2 cr. Reading of texts, lexicography, history. Offered 1943-44. Mr. Kasten.

134. Spanish Renaissance. Yr; 2 cr. A study of the most significant authors and their works from the *Celestina* to Cervantes. Offered 1942-43. Mr. Herriott.

135. Survey of Golden Age Literature. Yr; 3 cr. Offered 1943-44. Mr. Cool.

137. Survey of Eighteenth Century Literature. Yr; 2 cr. Offered 1942-43. Mr. Lyon.

138. Survey of Nineteenth Century Literature. Yr; 3 cr. Offered 1943-44. Mr. Berkowitz.

139. Survey of Twentieth Century Literature. Yr; 3 cr. Offered 1942-43.

144. Survey of Spanish Poetry. Yr; 2 cr. Offered 1942-43.

146. Survey of Spanish-American Literature. Yr; 3 cr. Offered 1944-45. Sr. Neale-Silva.

163. French-Spanish Literary Relationships. Yr; 2 cr. See French 163.

164. Golden Age Drama. Yr; 2 cr. Intensive study of the drama from 1580 to 1700. Offered 1942-43.

165. Cervantes. Yr; 2 cr. Offered 1943-44. Mr. Cool.

170. Nineteenth Century Drama. Yr; 2 cr. Offered 1944-45. Mr. Berkowitz.

176. Spanish-American Essay and Novel. Yr; 2 cr. Offered 1942-43. Sr. Neale-Silva.

180. Advanced Independent Reading. For upper-group majors complying with conditions of paragraph 20, p. 57. Consult Chairman of Department.

200. Individual Research. Yr; credit commensurate with work accomplished. For graduates only. Staff.

202. Methods in Spanish Literary Criticism. Yr; 2 cr. Required of candidates for the doctorate. A study of genre types, and of the social, philosophical and aesthetic questions relating to the interpretation of Spanish literature. Offered 1943-44.

Spanish and Portuguese Masterpieces in Translation. Mr. Oelschläger. See Comparative Literature 55. Does not carry credit in Spanish.

Cervantes and the Spanish Golden Age. Mr. Cool. 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.

204. Cervantes. Yr; 2 cr.

205. Eighteenth Century. Yr; 2 cr. Mr. Lyon.

209. History of Literary Criticism in Spain. Yr; 2 cr. Mr. Berkowitz.

226. Spanish-American Literature. Yr; 2 cr. Offered 1943-44. Sr. Neale-Silva.

230. Tirso de Molina. Yr; 2 cr.

231. Galdos. Yr; 2 cr. Offered 1942-43. Mr. Berkowitz.

235. Costumbrismo. Yr; 2 cr. Mr. Lyon.

240. Quevedo. Yr; 2 cr. Mr. Cool.

256. Pre-Romaticism. Yr; 2 cr.

262. Romaticism. Yr; 2 cr. Mr. Berkowitz.

263. Modern Spanish Thought. Yr; 2 cr.

264. Didactic Literature. Yr; 2 cr. Mr. Kasten

266. Fifteenth Century. Yr; 2 cr.

282. Medieval Literature. Yr; 2 cr. Offered 1944-45. Mr. Kasten.

PORTUGUESE

1a-1b. Elementary Portuguese. Yr; 4 cr. 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.

131. Survey of Portuguese and Brazilian Literature. Yr; 3 cr. Mr. Kasten.

SPEECH

PROFESSORS EWBANK, WEAVER, *chairman,* WEST; ASSOCIATE PROFESSORS BORCHERS, JOHNSON; ASSISTANT PROFESSOR MITCHELL; LECTURER DIETRICH; 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 daignosis 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. 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, II; 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. Two practice sections. Miss Grim.

6. Voice Training. I, II (Limited enrollment second semester); 3 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 and minors, speech 1* which may be taken concurrently; for others, consent of instructor. Not open to senior majors or minors. 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. Dietrich and staff.

8b. Extempore Speaking. II; 2 cr. Prerequisite: Speech 8a. Required of freshman physical education men and freshman electrical engineers. Mr. Dietrich and staff.

16. Elements of Expressive Action. I, II; 2 cr. Prerequisites: For majors and minors, Speech 1* and 6 or concurrent registration; for others, sophomore standing and cosent of instructor. Miss Grim.

18. Oral Interpretation of Literature. II; 2 cr. Prerequisites: For majors and minors, Speech 6; for others, junior standing and consent of instructor. Miss Grim.

19a. Elementary Dramatic Production. II; 2 cr. History of the theatre. Prerequisites: Junior standing and consent of instructor. Mr. Mitchell.

19b. Elementary Dramatic Production. I; 2 cr. Fundamentals of acting. Prerequisites: For majors and minors, Speech 16 or concurrent registration; for others, junior standing and consent of instructor. Mr. Buerki, Mr. Dietrich.

22. Dramatic Reading and Platform Art. Yr; 3 cr. Prerequisites: Speech 16 and 18. Miss Johnson.

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 and minors, Speech 2, 3, or 4; for others, consent of instructor. Mr. Ewbank.

110. Radio Speaking. I, II; 2 or 3 cr. Prerequisites: For majors and minors, Speech 6 and junior standing; for others, junior standing and consent of instructor. Mr. Ewbank and staff.

119. Theatre Direction. Yr; 3 cr. Prerequisites: For majors and minors, Speech 19a and 19b; for others, senior standing and consent of instructor. Mr. Mitchell.

120. Play Writing. I; 3 cr. Prerequisites: Junior standing and consent of instructor. Mr. Mitchell.

121. Voice Science. I; 3 cr. Prerequisites: For majors and minors, Speech 2, and junior standing; for others consent of instructor. Mr. Weaver.

123. Interpretation of Classic Literature. II; 3 cr. Prerequisites: For majors and minors, 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 and minors, 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 and minors, Speech 2 and 25; for others, Speech 25 or consent of instructor. Mr. West.

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*Wherever listed as a prerequisite, Speech 1 signifies 1 credit in the lecture hour of Speech 1, plus two practic hours in either Speech 1 or 7.

135. Advanced Argumentation and Debate. II; 3 cr. Offered 1942-43 and in alternate years. Prerequisite: Speech 3 or 4 or consent of instructor. Mr. Ewbank.

136. Theory and Practice of Group Discussion. II; 3 cr. Offered 1943-44 and in alternate years. 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 principles; scenic construction and lighting in Bascom Theatre. 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 and minors, 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 and minors, 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. II; 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. I; 2 cr. Mr. Ewbank.

TEACHERS' COURSE

Teaching of Speech in High School. II. See School of Education.

Teaching of Speech in College. I. See School of Education.

ZOOLOGY

Professors Guyer, *chairman*, Herrick, Meyer, Noland, Wagner; Assistant Professors Bilstad, Hasler, McShan, Wolfe; Research Associate Claus; Instructor Farner.

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. 4 hrs lab.; 2 hrs. lect.; 1 hr. quiz. Mr. Guyer, Mr. Wagner and staff.

2. General Zoology II; 5 cr. The classification, structure, physiology, life history, and interest for man of the main types of animals. Bird trips. Prerequisite: Zoology 1, or 17 or consent of instructor. 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. 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 or 17. Mr. Noland and staff.

104. Comparative Anatomy of Vertebrates. II; 5 cr. Lectures comparing structure of organ systems in the different vertebrate groups. Laboratory dissection of shark, mud-puppy, and cat. Prerequisite: Zoology 1 or 17. 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. 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. Prerequisites: Zoology 1 and sophomore standing. 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 of instructor. 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 105 and consent of instructor. Mr. Meyer.

110. Entomology: Anatomy and Embryology. I; 3 cr. Anatomy, histology and development of insects. Prerequisite: Elementary entomology. Mr. Noland.

111. Micro-Technique. I; 3 cr. Training in the preparation of histological material. Prerequisite: Zoology 1 or 17. Miss Bilstad.

112. Medical Entomology. I; 3 cr. A study of arthropods and the diseases they cause or transmit. Arthropods of importance in human disease are stressed. Prerequisite: Sophomore standing. Not offered 1942-43. 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. Miss Bilstad.

114. Fishes, Amphibians and Reptiles. I; 3 cr. Lectures on classification, natural history and adaptations of fishes, amphibians and reptiles. Laboratory and field work. Prerequisite: Zoology 1 or 17. Mr. Wolfe.

115. Birds and Mammals. II; 3 cr. Lectures on classification, natural history and adaptations of birds and mammals. Laboratory and field work. Prerequisite: Zoology 1 or 17. Mr. Wolfe.

118. General Entomology. II; 3 cr. Structure, physiology, classification, and natural history of insects. Laboratory includes making a collection of local insects. Prerequisite: Zoology 1 or 17. Mr. Noland.

119. Animal Parisites 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. Mr. Herrick and staff.

120. General Parasitology. I; 3 cr. Structure, life history, diagnosis and control of parasites infecting animals other than man. Prerequisite: Zoology 1 or Veterinary Science 1. Not offered 1942-43. Mr. Herrick.

122. Endocrinology. I; 3 cr. The physiology of the glands of internal secretion, with emphasis on those concerned with reproduction. Prerequisites: Zoology 1 and 105, Chemistry 1a, or consent of instructor. Mr. Meyer.

124. Limnology. I; 2 cr. The geology, physics, chemistry, and biology of lakes. Prerequisites: Zoology 1, Chemistry 1a. Mr. Hasler.

125. Hydrobiological Methods. II; 2 cr. Biological, chemical and physical methods for the field and laboratory study of fish and smaller aquatic organisms and their environment. Prerequisites: Zoology 1, Chemistry 1a. Mr. Hasler.

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. Offered 1942-43 and in alternate years. Mr. Hasler.

127. Comparative Physiology. I; 4 cr. The physiology of animals other than mammals. Prerequisites: 10 credits of zoology, 10 credits of chemistry. Offered 1943-44 and in alternate years. Mr. Hasler. Special lectures by Eyster, Herrin, Meek, Meyer.

180. Advanced Zoological Problems. I, II; 2-5 cr. Advanced zoological work not covered in regular courses. Prerequisites: Chairman's and dean's approval. Staff.

200. Graduate Research. I, II, 2-5 cr. Staff.

201. Proseminary. Yr; 1 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.

202. Invertebrate Zoology Journal Club. Yr; 1 cr. 4:30 Tu. Mr. Noland.

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: Chemestry 1; Zoology 105 or 111. Mr. Guyer.

215. The Cell in Development and Inheritance. II; 2 cr. The chromosomal 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. Mr. Guyer.

219. Parasitology Journal Club. Yr; 1 cr. Not offered first semester 1942-43. Mr. Herrick.

220. Seminary. Yr; 1 cr. Oral reports and discussions of advanced zoological subjects by members of the group. Mr. Guyer.

222. Endocrinology Journal Club. Yr; 1 cr. 12:30 W. Mr. Meyer.

224. Limnology Journal Club. Yr; 1 cr. 12:30 F. Mr. Hasler.

COLLEGE OF AGRICULTURE

CHRIS L. CHRISTENSEN, DEAN

FACULTY

AHLGREN, HENRY LAWRENCE, *Ph.D.*, Associate 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.*, Associate Professor of Economic Entomology
ALLINGTON, WILLIAM B., *Ph.D.*, Instructor in Horticulture
ALLISON, JOSEPH LEWIS, *Ph.D.*, Assistant Professor of Plant Pathology
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
ATTOE, OSBORNE JAMES, *B.A.*, Instructor in Soils and Horticulture
AUST, FRANZ ALBERT, *M.S.*, *M.L.D.*, Associate Professor of Horticulture
BAKKEN, HENRY HARRISON, *M.A.* Associate Professor of Agricultural Economics
BALDWIN, IRA LAWRENCE, *Ph.D.*, Professor of Agricultural Bacteriology
BARRETT, GEORGE ROBERT, *M.S.*, Instructor in Dairy Husbandry
BARTON, JOHN RECTOR, *B.A.*, *B.D.*, Associate Professor of Rural Sociology
BAUMANN, CARL AUGUST, *Ph.D.*, Associate Professor of Biochemistry
BEACH, BURR ABRAHAM, *D.V.M.*, Professor of Veterinary Science
BENEDICT, ROBERT GLENN, *M.S.*, Instructor in Agricultural Bacteriology
BERGER, KERMIT CARL, *Ph.D.*, Instructor in Soils
BEWICK, THOMAS LYMAN, *Ph.B.*, *Ph.M.*, *M.S.*, State Leader of Boys and Girls Clubs
BLISS, MILTON EDWARD, *B.S.*, Assistant Professor of Agricultural Journalism
BOHSTEDT, GUSTAV, *Ph.D.*, Professor of Animal and Dairy Husbandry; In charge Livestock Nutrition
BRANN, JOHN WILLIAM, *M.S.*, Assistant Professor of Plant Pathology
BRAY, ROBERT WOODBURY, *M.S.* Instructor in Animal Husbandry
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
BURCALOW, FRANK VICTOR, *M.S.*, Assistant Professor of Agronomy
CALLENBACH, JOHN ANTON, *Ph.D.*, Instructor in Economic Entomology
CARTER, ROY MERWIN, *B.S.*, *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.A.*, Professor of Soils
CHRISTENSEN, CHRISTIAN LAURITHS, *B.S.*, *D.Agr.*, Dean, College of Agriculture; Director of Agricultural Experiment Station and Agricultural Extension
CLARK, WARREN WILLIAM, *M.S.*, Professor of Agricultural Extension; Associate Director of Agricultural Extension
CLARK, (WILLIAM) NOBEL, *M.S.*, Associate Director of the Agricultural Experimental Station

COLE, LEON JACOB, *Ph.D.*, Professor of Genetics
COLLENTINE, ARTHUR OWEN, *B.S.*, Assistant Professor of Dairy Husbandry
COMBS, OVA BEETEM, *M.S.*, Assistant Professor of Horticulture
COOPER, DELMER CLAIR, *Ph.D.*, Associate Professor of Genetics
CRAMER, ALBERT JULIUS, *B.S.*, Assistant Professor of Dairy Husbandry
CRAVENS, WILLIAM WINSOR, *Ph.D.*, Assistant Professor of Poultry Husbandry
CURRY, JOHN STEUART, *A.N.A.*, Artist in Residence, College of Agriculture
DARLING, HENRY MELVIN, *M.S.* Assistant Professor of Plant Pathology
DARLOW, ALBERT EDWARD, *M.S.*, Professor of Animal Husbandry
DELWICHE, EDMOND JOSEPH, *M.S.*, Professor of Agronomy; Superintendent in charge of Ashland, Spooner, and Peninsular Branch Experiment Stations
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
ELFNER, JOSEPH SHERBURNE, *B.S.*, Instructor in Horticulture
ELVEHJEM, CONRAD ARNOLD, *Ph.D.*, Professor of Biochemistry
FARGO, JOHN MERRILL, *Ph.D.*, Assistant Professor of Animal Husbandry
FARRAR, CLAYTON LEON, *Ph.D.*, Associate Professor of Economic Entomology
FLUKE, CHARLES LEWIS, JR., *Ph.D.*, Professor of Economic Entomology
FOLLETT, ALBERT OSCAR, *B.S.A.*, 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
HAAG, MAURICE RALPH, *B.S.*, Instructor in Agricultural Journalism
HAAS, ALFRED JOHN, Associate Professor; 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
HAMILTON, THOMAS EDWIN, *B.S.*, Instructor in Animal Husbandry
HARDIN, CLIFFORD MORRIS, *Ph.D.*, Assistant Professor of Agricultural Economics
HARRIS, ROY THEODORE, Assistant Professor of Dairy Husbandry
HART, EDWIN BRET, *B.S.*, Professor of Biochemistry
HASTINGS, EDWIN GEORGE, *M.S.*, Emeritus Professor of Agricultural Bacteriology
HAYES, JOHN BARRY, *B.S.*, Professor of Poultry Husbandry
HEAN, CLARENCE SCOTT, *B.A.*, Librarian, College of Agriculture
HEIZER, EDWIN ELBERT, *Ph.D.*, Professor of Dairy Husbandry
HENRY, BERCH WALDO, *Ph.D.*, Instructor in Plant Pathology
HERRICK, CHESTER ALBERN, *Sc.D.*, Professor of Zoology and Veterinary Science
HIBBARD, BENJAMIN HORACE, *Ph.D.*, Emeritus Professor of Agricultural Economics
HILL, GEORGE WILLIAM, *Ph.D.*, Associate Professor of Rural Sociology
HOBSON, ASHER, *Ph.D.*, Professor of Agricultural Economics
HOLDEN, EUGENE DAVENPORT, *M.S.*, Assistant Professor of Agronomy
HOPKINS, ANDREW WINKLE, *B.L.*, Professor of Agricultural Journalism; Agricultural Editor

HOVELAND, NIEMEN HOWELL, *M.S.*, Assistant Professor of Agricultural Journalism
HULL, HAROLD HAIGHT, *Ph.D.*, Instructor in Soils
HUMPHREY, GEORGE COLVIN, *B.S.*, Emeritus Professor of Dairy Husbandry
IRWIN, MALCOLM ROBERT, *Ph.D.*, Professor of Genetics
JACKSON, HOWARD CAMPBELL, *Ph.D.*, Professor of Dairy Industry
JACKSON, MARION LEROY, *Ph.D.*, Assistant Professor of Soils
JAMES, JOHN AMBROSE, *B.S.*, Professor of Agricultural Education
JOHNSON, JAMES, *Ph.D.*, Professor of Horticulture
JOHNSON, MARVIN JOYCE, *Ph.D.*, Associate Professor of 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
KIVLIN, VINCENT EARL, *M.S.*, Assistant Dean, College of Agriculture; Professor of Agricultural Education
KOLB, JOHN HARRISON, *Ph.D.*, Professor of Rural Sociology
KUEHNER, CONRAD LOUIS, *B.S.*, Assistant Professor of Horticulture
LACEY, JAMES JEROME, *B.S.*, Professor of Animal Husbandry
LANGDON, GRACE ELIZABETH, *M.A.*, Assistant Professor of Agricultural Journalism
LAROCK, 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.*, Assistant Professor of Zoology and Economic Entomology
LINK, KARL PAUL, *Ph.D.*, Professor of Biochemistry
LONGENECKER, GEORGE WILLIAM, *M.S.*, Associate Professor of Horticulture; Executive Director, University Aboretum
LUNDQUIST, NORMAN STANLEY, *M.S.*, Instructor in Dairy Husbandry
LUTHER, ERNEST LEONARD, *B.S.*, Emeritus Professor of Agricultural Extension
MCCARTER, JANET RUTH, *Ph.D.*, Assistant Professor of Agricultural Bacteriology
MCCOY, ELIZABETH FLORENCE, *Ph.D.*, Associate Professor of Agricultural Bacteriology
MCGIBBON, WILLIAM HENRY, *B.S.*, Assistant Professor of Poultry Husbandry
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
MORGAN, BANNER BILL, *Ph.D.*, Instructor in Veterinary Science
MORRISSEY, HAROLD JAMES, *B.S.*, Instructor in Agricultural Education
MORTENSON, WILLIAM PETER, *Ph.D.*, Associate Professor of Agricultural Economics
MUCKENHIRN, ROBERT JOHN, *Ph.D.*, Assistant Professor of Soils
MUNGER, HENRY MARTIN, *Ph.D.*, Assistant Professor of Horticulture
NEAL, NORMAN PERCY, *Ph.D.*, Associate Professor of Agronomy and Genetics
NELSON, LEWIS BAILEY, *B.S.*, *M.S.*, *Ph.D.*, Instructor in Soils
NUSBAUM, DANIEL DAVID, *M.S.*, Instructor in Dairy Industry
OGDEN, WILLIAM BUTLER, *M.S.*, Instructor in Horticulture
PARSONS, KENNETH HERALD, *Ph.D.*, Associate Professor of Agricultural Economics
PETERSON, WILLIAM HAROLD, *Ph.D.*, Professor of Biochemistry
PHILLIPS, PAUL HORRELL, *Ph.D.*, Professor of Biochemistry
PRICE, WALTER VAN, *Ph.D.*, Professor of Dairy Industry
QUACKENBUSH, FORREST WARD, *Ph.D.*, Instructor in Biochemistry
RASMUSSEN, RUPERT HENRY, *B.S.*, Assistant Professor of Agricultural Journalism
RIEMAN, GUSTAV HERMAN, *Ph.D.*, 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
ROSS, OSCAR BURR, *Ph.D.*, Instructor in Animal Husbandry

ROWLANDS, WALTER AUGUSTUS, *B.S.*, Professor of Agricultural Economics; District Extension Leader, Agricultural Extension
RUPEL, ISAAC WALTER, *Ph.D.*, Associate 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
SCHWENDIMAN, ALVIN, *B.S.*, *Ph.D.*, Instructor in Agronomy
SEARLS, EDWARD MARLBOROUGH, *Ph.D.*, Assistant Professor of Economic Entomology
SHANDS, HAZEL LEE, *Ph.D.*, Associate Professor of Agronomy
SHANDS, RUEBUSH GEORGE, *Ph.D.*, Assistant Professor of Agronomy
SMITH, DAVID CLYDE, *Ph.D.*, Associate 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
STENEHJEM, GWENDOLYN AVIS, *B.S.*, Instructor in Rural Sociology and Speech
STROMMEN, ARTHUR MALCOLM, *M.S.*, Instructor in Agronomy
STRONG, FRANK MORGAN, *Ph.D.*, Associate Professor of Biochemistry
SUMNER, WILLIAM ALLISON, *Ph.M.*, Professor of Agricultural Journalism
THOMSEN, LOUIS CHARLES, *B.S.*, Associate Professor of Dairy Industry
TORRIE, JAMES HIRAM, *Ph.D.*, Assistant Professor of Agronomy
TOTTINGHAM, WILLARD 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.*, Assistant Professor of 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.*, Associate Professor of Dairy Industry
WEHRWEIN, GEORGE SIMON, *Ph.D.*, Professor of Agricultural Economics
WERNER, GEORGE MCKINLEY, *B.S.*, Assistant Professor of Dairy Husbandry
WHITEHAIR, CHARLES KENNETH, *D.V.M.*, Instructor of Veterinary Science
WHITSON, ANDREW ROBINSON, *B.S.*, Emeritus 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, *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.*, 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 that pertains to the problems of farming and homemaking. 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 agricultural college graduate may be trained in the application of modern up-to-date methods which today are indispensable to profitable farming. He has had an opportunity to broaden greatly his perspective and to increase his capacity to deal effectively with farm problems. Consequently, the qualified graduate may do well in a managerial capacity for another farm owner or in directing his own farming enterprise.

TEACHING AND EXTENSION WORK—In many rural communities, Smith-Hughes vocational agriculture instructors are teaching high-school youth the techniques of improved scientific farming methods. County agricultural agents, agricultural college extension specialists, and agricultural extension representatives in the United States Department of Agriculture are effectively disseminating among the farm youth and farmers of the various states information on the latest agricultural methods and practices made available by the agricultural experiment stations. Only men with adequate farm background and good training in an agricultural college may hope for placement in agricultural teaching or extension work.

AGRICULTURAL COMMERCE AND INDUSTRY—In the business world a considerable demand for agricultural college graduates exists. Private and governmental financial institutions engaged in farm loan activities, and newspaper, advertising and radio broadcasting agencies have taken many agriculturally trained graduates. Others have been absorbed by canning, feed and seed, fertilizer, dairy products, meat packing, commercial hatchery, and farm implement companies.

AGRICULTURAL RESEARCH—Agricultural experiment stations and 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, worthwhile 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 Science Club*—for students interested in dairy industry; *Badger Conservation Club*—for students interested in forestry, nature, and conservation; *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 technical knowledge of agriculture, the Long Course prepares students for the more desirable commercial, managerial, and professional positions.

Admission—The four methods by which one may be admitted to the Long Course in the College of Agriculture are the same as for any other college or school in the University. See General Information bulletin, pages 20-27.

Fees, Books, and Miscellaneous Costs—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 and books. The only additional expenses the student need be concerned about are board, room, clothes, laundry and entertainment. For further details see General Information bulletin, pages 2-4.

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 226 to 233. 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.*

LONG COURSE A 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 45 (50)* *elective and required* credits within the College of Agriculture; (2) he takes a minimum of 20 (24)* *elective* credits outside the College of Agriculture and (3) he 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 124 (133)* credits and 124 (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] or Zoology 1—General zoology	5
An. or Dy. Husb. 1—Livestock prod.[2] or Agron. 1—Princ. & practices in crop prod.	3	Agron. 1—Princ. & practices in crop prod. or An. or Dy. Husb. 1—Live stock prod.[2]	3
Freshman lectures[3]	1	Military Science 1[4]	0
Military Science 1[4]	0	Physical Education	0
Physical Education	0		
	16		16

[1] A student in agriculture may satisfy the mathematics requirements by satisfactorily completing from the following courses one which, on the basis of prerequisites, he is eligible to take for credit: Math. 71, 1a, 1b, 3a, or 51. Students presenting three or more units of high-school mathematics selected from algebra, geometry, or trigonometry, are excused from the mathematics requirements. Math. 71 is for students not intending to continue mathematics beyond the required course. However, students who take the 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 Civil Engineering 117 for the mathematics requirement.

[2] Students majoring in landscape gardening may substitute Art Education 50 for Animal Husbandry 1.

[3] See information on Freshman Lectures on page 198.

[4] See information on Military Science and Physical Education Requirement on page 198.

[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 provided 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.

* Figures in parentheses ( ) apply to students in agriculture who entered college *before* September 1, 1939.

MISCELLANEOUS RULES AND REGULATIONS

For Freshmen

Freshman Lectures—All students in agriculture are required to take this course, which allows one credit. The course should be taken during the first semester of the freshman year. Only transfer and advanced standing students who enter the course in agriculture with sophomore standing or above shall be excused from this requirement.

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 197.

Military Science and Physical Education Requirement—All male freshmen are required to enroll in military science at the time of registration with the provision that the following will be exempted from taking military science: (a) students who qualify and are accepted for membership in the Regimental Band; (b) students who do not meet the established physical requirements for military science as certified by the Student Health department; and (c) students who for other reasons are exempted or excluded by the Department of Military Science. Subject to the aforementioned conditions governing enrollment in military science, undergraduate men are required to complete: (1) Two hours of physical education for each semester of their residence and (2) Three hours of military science for four semesters. (Additional information may be found in the first-semester time table.)

For Sophomores

Sophomore Agricultural Options—Sophomores 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—See curriculum for sophomores on page 200.

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 196, 197 and 224-233.

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 that they will begin to meet the requirements for their majors or split majors. See pages 196, 197 and 224-233.

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 pages 233-234.

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 and earn residence credit to apply toward an advanced degree at the same time they are completing their requirements for the bachelor degree.

MISCELLANEOUS RULES AND REGULATIONS

FOR ALL STUDENTS

Although the rules are, in general, the same for all students in agriculture, there are a few exceptions. Students who entered college before September 1, 1939, are governed by rules slightly different from those prevailing where students entered after September 1, 1939. In the rules given under the following three sub-headings, namely: *Requirements for Graduation, Minimum and Maximum Study Loads,* and *Promotions,* the statements are applicable to *all* students. Figures shown in parentheses ( ) are the only exceptions and they apply to students who entered college *before* September 1, 1939, only.

Requirements for Graduation—1—Completion of the required courses as indicated on pages 197 and 200. 2—A total of 124 (133)* credits and 124 (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. 6—A minimum of 20 (24)* elective, or non-required, credits outside the College of Agriculture. 7—A minimum of 45 (50)* credits including required, optional, major and elective courses within the College of Agriculture; and 8—After March 1, 1943, a minimum grade-point average of 1.5 in *all* courses taken in agriculture.

Minimum and Maximum Study Loads—Each student is required to take class and laboratory work totaling from 12 (12)* to 17 (18)* credits per semester, including freshman lectures and the military science or physical activity requirement as required of all freshmen. (See preceding page.) A student desiring to take less than 12 (12)* or more than 17 (18)* credits must get permission in advance from the Executive Committee of the College.

Promotions—A student becomes a sophomore on the completion of 25 (26)* credits and 25 (26)* grade-points; a junior on the completion of 58 (60)* credits and 58 (60)* grade-points; and a senior on the completion of 88 (95)* credits and 88 (95)* grade-points.

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 independent 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.

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, when the student is a senior his 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. *After March 1, 1943, students, to be recommended for graduation, must have a minimum grade-point average of 1.5 in all courses taken in agriculture.*

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, must be requested by the student's going to his adviser, indicating his request, and 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 "fail", and must be removed in the same manner as any other failure, as specified above.

Thesis—The undergraduate thesis when required as part of the major requirement, shall consist of no more and no less than four credits.

Agricultural and Non-Agricultural Courses—Courses taken outside the College as a part of the major are not considered as a portion of the 45 (50)* credits required in the College of Agriculture. 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 45 (50)* required credits. Courses given by staff members of the Forest Products Laboratory, approved by the College of Agriculture, shall be considered as agricultural. Credits in Education 75 may be counted toward graduation only by those students who complete the requirements for the university teachers' certificate.

* Figures in parentheses ( ) apply to students in agriculture who entered College *before* September 1, 1939.

SOPHOMORE YEAR

First Semester	Credits		Second Semester	Credits
Agr. Bact. 1—General survey	4		Agr. Econ. 1—Prin. of agr. econ.[4]	3
Soils 1—Soils and soil fertility[1]	4	or	Biochemistry 1—Elem. biochem.[1]	4
Econ. 1a—General economics	4		Agricultural option[2]	3
Agricultural option[2]	3		Electives	4-(8)*
Electives	1-(3)*		Military Science[3]	0
Military Science[3]	0		Physical Education	0
Physical Education	0			
	16-(18)*			14-(18)*

[1] Only one of the courses, Soils 1 and Biochemistry 1, is required; 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.

[3] This is the second year of Military Science for those required to take it the first year. See rule on Military Science and Physical Education Requirement on page 198.

[4] Landscape Gardening majors may take Agricultural Economics 117 in place of Agricultural Economics 1.

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 pages 233-234 for more detailed information.

Junior and Senior Years

The student ordinarily will carry from 15 (16)* to 17 (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 with respect to 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 199.)

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 at the same time he is completing his requirements for his bachelor 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, in the College of Agriculture, two years of work in pre-forestry study. Upon the satisfactory completion of the pre-forestry course, a student may transfer to another institution where forestry is given and there complete his work toward a degree in forestry.

The pre-forestry work suggested is similar to the prerequisite training required by most forestry schools. However, it is advisable that the student, in the spring semester of his freshman year, confer with his adviser relative to the forestry institution he should plan to attend after he will have completed his two-year pre-forestry course. This will enable the student and his adviser to plan more thoroughly the student's course of study for his sophomore year at the University of Wisconsin. 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 year is recommended for students intending to take forestry:

* Figures in parentheses ( ) apply to students in agriculture who entered college before September 1, 1939.

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
Agron. 1—Princ. and practices in crop production	3	Botany 1—General botany	5
Math. 1a—Algebra or Math. 3a—Algebra and trigonometry	4	Econ. Ent. 1—Elem. ent. (Farm insects)	3
Freshman Lectures	1	Military Science[1]	0
Military Science[1]	0	Physical Education	0
Physical Education	0		
	16		16

[1] See information on Military Science and Physical Education requirement on page 198.

SOPHOMORE YEAR

The subjects chosen during the sophomore year should be those that will conform to the requirements of the institution to which the student hopes to transfer and complete his work in forestry.

The U. S. Forest Products Laboratory, cooperating with the University of Wisconsin, in addition to giving the subjects, 1, General Forestry, and 102, Wood Technology, which are offered as agricultural electives, also gives other courses which deal with the study of wood, its properties and uses. See courses listed on pages 215-216.

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. The present tendency is to require a minimum of two years of pre-veterinary work. It is important for prospective veterinary science students to know that veterinary colleges operate on a restricted enrollment basis. Only the student who ranks high scholastically while taking his pre-veterinary work, may expect to gain admission to a veterinary college.

Normally, a student in a veterinary college is required to take four years of professional study regardless of the number of years of pre-veterinary study he may have had. To enable residents of Wisconsin to get the necessary college work that will qualify them for entrance to a veterinary college, the College of Agriculture offers the following 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	An. or Dy. Husb. 1—Livestock production	3
Electives[1]	0-2	Electives[1]	3-5
Freshman lectures[2]	1	Military Science[3]	0
Military Science[3]	0	Physical Education	0
Physical Education	0		
	14-16		14-16

[1] It is suggested that, when possible 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.
[2] See information on Freshman Lectures on page 198.
[3] See information on Military Science and Physical Education requirement on page 198.

SOPHOMORE YEAR

In addition to courses such as Agricultural Economics 1 or 8, Biochemistry 1, Botany 1, Dairy Husbandry 4, Economics 1a, Genetics 1, Mathematics 1, and Speech 1 or 7, it is recommended that the student select courses which will provide a suitable background for work in the field of veterinary science.

The cost of each year of study will be the same as for any year of study in the Long Course. (See page 196.)

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 Economics may be obtained by writing to the Director of Home Economics, Home Economics Building, Madison, Wisconsin.

GRADUATE WORK IN AGRICULTURE AND HOME ECONOMICS

Graduate work is offered in each of the nineteen 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 October. 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. High-school graduates may be admitted without having had practical experience. 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 Fertilizer Conference
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 an annual basis. Persons interested in detailed information concerning any of the above courses should write to the Assistant Dean, College of Agriculture, Madison, Wisconsin.

DEPARTMENTS OF INSTRUCTION

Abreviations used in the announcement of courses:
Yr—Course continues through 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, *chairman*, FRAZIER, FRED; ASSOCIATE PROFESSORS MCCOY, SARLES, WILSON; ASSISTANT PROFESSORS UMBREIT, MCCARTER; INSTRUCTOR BENEDICT.

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. Required of all agricultural students. Prerequisite: Chem. 1a. Mr. Sarles.

2. GENERAL SURVEY. II; 4 cr. For chemistry course students. Prerequisite: Chem. 1b. Mr. Wilson.

4. GENERAL SURVEY. II; 4 cr. The relation of microorganisms to foods, domestic sanitation, and hygiene. Required of professional majors in home economics. Prerequisite: Chem. 1b. Miss McCarter.

100. THESIS. Yr; 2 cr. Prerequisites: Senior standing, Agr. Bact. 1, 2, or 4, and consent of instructor. 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. 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. Mr. Fred, Mr. Umbreit.

124. ADVANCED TECHNIQUE. II; 3 cr. Training in special methods of laboratory technique. Prerequisite: Agr. Bact. 1, 2, or 4, or Medical Bact. 102. Mr. Sarles.

125. FOOD BACTERIOLOGY. I; 3 cr. The microbiology of foods and of food fermentations. Prerequisites: Agr. Bact. 1, 2, or 4, or Medical Bact. 102. 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. Mr. Baldwin, Mr. Umbreit.

127. INDUSTRIAL MICROBIOLOGY. II; 3 cr. (War Emergency course). (Complementary with Biochemistry 127.) Principal bacteria, yeasts, and molds of industrial importance. Methods of isolating, identifying, and handling stocks and starter cultures; conditions affecting their efficiency in industrial application. Prerequisite: Agr. Bact. 1, 2, or 4, or Medical Bact. 102. Miss McCoy and staff.

130. Determinative Bacteriology. I; 2-3 cr. Isolation, characterization and classification of bacteria. Prerequisite: Agr. Bact. 1, 2, or 4, or Medical Bact. 102. 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.

180. Special Problems. I, II; *cr. Prerequisites: Senior standing and consent of instructor. Staff.

200. Research. Yr; *cr. A detailed study of a definite problem in the field of agricultural bacteriology. Prerequisites: Graduate standing, six credits in bacteriology, and consent of instructor. 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, Parsons, Schaars; Assistant Professors Ebling, Follett, Hardin, Mitchell, Salter; 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. Prerequisites: Senior standing and consent of instructor. 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 the utilization and conservation of land or natural resources. Prerequisite: Agr. Econ. 1 or Econ. 1b. 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: 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, 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: Econ. 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: 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. 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 Econ. 1b. Mr. Mortenson.

162. Agricultural Policies. II; 2 cr. An analysis of governmental aids to agriculture in the United States and abroad. Prerequisite: Senior standing. Mr. Hobson.

179. Urban Land Economics. II; 3 cr. Urbanization, location of industries and cities, urban land utilization, position of the city in our economy. Prerequisite: Agr. Econ. 117 or consent of instructor. Mr. Wehrwein.

180. Special Problems. I, II; *cr. Prerequisites: Senior standing and consent of instructor. Staff.

200. Research. Yr; *cr. Prerequisites: Graduate standing and consent of instructor. Cooperation and marketing, Mr. Hobson, Mr. Bakken, Mr. Froker, Mr. Schaars. Farm surveys and financial accounts in relation to farm management, Mr. McNall, Mr. Mitchell. Organized farmer movements, Mr. Hobson. Taxation and farm credit, Mr. Parsons. Land economics and land 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. II; 3 cr. Economics of land utilization, theories of rent, principles of land evaluation and taxation. Mr. Wehrwein.

226. Seminary: Land Problems. Yr; 2 cr. Land tenure and utilization in the principal countries. Prerequisite: Econ. 117, 229, or concurrent registration. Mr. Wehrwein, Mr. Salter.

228. Seminary: Theory of Markets and Marketing. I; 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 1942-43 and alternate years. Mr. Bakken.

229. Seminary: Advanced Agricultural Economics. II; 3 cr. The field of agricultural economics with respect to its origin and the main issues. Mr. Parsons.

255. Seminary: Price Analysis. II; 3 cr. The application of statistical and other methods involved in analyzing agricultural prices and related problems. Prerequisite: Economics 130 or consent of instructor. Offered 1943-44 and 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 an academic minor in general science, biology, or in community relationships, and elective courses in animal husbandry, dairy husbandry, poultry husbandry, dairy industry, agronomy, horticulture, soils, agricultural engineering, and agricultural economics as a background of agriculture and also the 18 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 at the beginning of 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. Seniors spend 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 minimum number of 50 credits required in the strictly agricultural subjects. Course 16, 2 credits, given jointly by the departments of Agronomy and Horticulture, may be counted as a portion of the 5 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, principles, and practices of rural education. Prerequisite: Sophomore standing. Mr. James.

25. RURAL LIFE. (See Rural Sociology 25.) I; 3 cr. May be included as part of a major in agricultural education. Prerequisite: Sophomore standing. 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: Educ. 75 and senior standing. Mr. Kivlin, Mr. Freitag, Mr. Morrissey.

100. THESIS. Yr; 2 cr. Prerequisites: Senior standing and consent of instructor. Staff.

103. SEMINARY. I, II; *cr. Problems in rural education for extension workers, teachers, and rural leaders. Mr. James.

111. EXTENSION WORK IN AGRICULTURE AND HOME ECONOMICS. II; 3 cr. Relationships and legal status of the various services for agriculture and home economics. Methods of organization and instruction used with adults and boys and girls. Mr. Clark and staff.

128. PROGRAM BUILDING IN VOCATIONAL AGRICULTURE. I, II; 3 cr. The program of work, directed practice, part-time and evening school, adapted to teaching agriculture in secondary schools. Prerequisites: Major in agricultural education and senior standing. Mr. James.

180. SPECIAL PROBLEMS. I, II; *cr. Prerequisites: Senior standing and consent of instructor. Staff.

200. RESEARCH. Yr; *cr. Problems of vocational, extension, or demonstration work. Prerequisites: Graduate standing and consent of instructor. Mr. James, Mr. Clark.

AGRICULTURAL ENGINEERING

PROFESSORS DUFFEE, *chairman*, ZEASMAN; ASSOCIATE PROFESSORS TRENK, WITZEL; ASSISTANT PROFESSORS BRUHN, LA ROCK; INSTRUCTOR 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 45 credits in agriculture (50 credits required of students who entered college before September 1, 1939), 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 page 230. 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. 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. Mr. Duffee and staff.

9. FARM MECHANICS. II; 3 cr. A course designed for students planning to teach vocational agriculture in high schools. Mr. Thoreson.

100. THESIS. Yr; 2 cr. Prerequisites: Senior standing and consent of instructor. 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 Civil Engr. 11 and 12. Offered 1942-43 and 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. Mr. Bruhn.

106. Soil Erosion, Causes and Control. I; 4 cr. (Same as Soils 106.) Causes and control of erosion by means of soil management and engineering practices. Only two credits of this course may be applied toward a major in agricultural engineering. Prerequisites: Soils 1 and Agr. Engr. 1 or consent of instructor. Mr. Zeasman, Mr. Muckenhirn.

111. Farm Structures. I; 4 cr. Prerequisites: Agr. Engr. 1 or Drawing 1, and Civil Engr. 117 or 118. Offered 1943-44 and alternate years. Mr. Witzel .

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 students in professional agricultural engineering. Prerequisites: Senior standing and consent of instructor. Staff.

200. Research. Yr; *cr. Prerequisites: Graduate standing and consent of instructor. Staff.

AGRICULTURAL JOURNALISM

Professors Hopkins, *chairman*, Sumner; Assistant Professors Bliss, Hoveland, Langdon, Rasmussen; Instructor Haag.

There is an increasing demand for graduates in agriculture and in home economics who have had an adequate training in technical journalism. To render the greatest service most college graduates are making an increasing use of the printed page. The ability to write simply and understandingly is invaluable in many fields. Journalism, advertising and radio are playing an increasing part in the work of many university graduates.

For students returning to the farm, Agricultural Journalism 1 and 3 are suggested. For prospective agricultural teachers and extension workers courses 1, 3, and 103 are recommended. Prospective teachers and workers in home economics extension are advised to take courses 8 and 103. For research workers Agricultural Journalism 1 or 8 and 115 are advised.

Majors in the department will be expected to take courses 1 or 8, 103, 111 or 112, and 115. 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 may count toward a major: Journalism 2, 3, and 123.

1. Agricultural News Writing. I, II; 3 cr. Prerequisite: Sophomore standing or consent of instructor. Mr. Sumner and staff.

2. Practice in Editing. I, II; 1 cr. Prerequisite: A semester's work on the *Country Magazine* or consent of instructor. Mr. Sumner.

3. Agricultural Advertising. I, II; 3 cr. Prerequisite: Sophomore standing or consent of instructor. Mr. Sumner.

8. Home Economics News Writing. I; 3 cr. Prerequisite: Sophomore standing or consent of instructor. 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. Prerequisites: Junior standing, Speech 110, or consent of instructor. Mr. Bliss.

100. Thesis. Yr; 2 cr. Prerequisites: Senior standing and consent of instructor. Staff.

103. Publicity Media and Methods. II; 2 cr. Prerequisite: Agricultural Journ. 1 or 8. Mr. Hopkins.

111. Writing Agricultural Features. I; 2-3 cr. May be taken for 3 credits by majors in agricultural journalism. Prerequisite: Student in agriculture or consent of instructor. Mr. Sumner.

112. Writing Home Economics Features. II; 2-3 cr. May be taken for 3 credits by majors in home economics journalism. Prerequisite: Student in home economics or consent of instructor. Mr. Sumner.

115. Writing and Editing Bulletins. I; 2 cr. Prerequisite: Senior standing. Miss Langdon.

180. Special Problems. I, II; *cr. Prerequisites: Senior standing and consent of instructor. Staff.

200. Research. Yr; *cr. Prerequisites: Graduate standing and consent of instructor. Mr. Hopkins, Mr. Sumner.

208. Seminary. Yr; 2 cr. Reader interest. Mr. Sumner.

212. Seminary. Yr; 2 cr. History of magazines. Offered 1942-43 and alternate years. Mr. Sumner.

AGRICULTURAL 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.

AGRONOMY

Professors Briggs, Delwiche, Graber, *chairman,* Leith, Wright; Associate Professors Ahlgren, Albert, Neal, H.L. Shands, D.C. Smith; Assistant Professors Burcalow, Holden, R.G. Shands, W.K. Smith, Torrie; Instructors Schwendiman, Strommen, Turner.

Not to exceed five credits from the following courses may be counted as a portion of the major requirements in agronomy: Soils 26, Soils 106, Soils 127, Plant Pathology 101, Botany 117, Botany 129, and Genetics 104.

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. Mr. Ahlgren, Mr. Schwendiman.

16. Crop Identification and Standards. I; 2 cr. (Same as Horticulture 16.) A laboratory study of the classification, identification and standards of excellence of field, orchard, and garden crops. Only one credit of this course may be counted toward a major in agronomy. Prerequisite: Junior standing. Mr. Holden, Mr. J. G. Moore.

36. Biometry. I; 3 cr. Introduction to the logic and use of statistics in the planning, analysis and interpretation of biological data. Prerequisites: Math. 1 or 71 or consent of instructor, and junior standing. Mr. Torrie.

100. Thesis. Yr; 2 cr. Subject should be chosen early. Prerequisites: Senior standing and consent of instructor. Staff.

102. Pastures and Pasture Problems. I; 2 cr. The establishment, maintenance, and improvement of pastures. Prerequisites: Agron. 1 and preferably some courses in soils and botany. Mr. Ahlgren.

104. Grain Crops. I; 3 cr. Taxonomic aspects, origin and distribution, cultural and commercial relations. Prerequisite: Agron. 1 or consent of instructor. 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 and identification of weeds and their seeds or fruits; control and basic principles involved. Prerequisite: Agron. 1. Mr. Schwendiman.

130. The Improvement of Agronomic Plants. I; 2 or 3 cr. Principles, objectives and techniques in the breeding and distribution of new varieties. Prerequisite: Genetics 1 or consent of instructor. Mr. D. C. Smith and staff.

131. Seminary. Yr; 1 cr. A review of current literature and studies of agronomic problems. Prerequisites: Ten credits in agronomy or botany, or both, and senior standing. Staff.

150. Advanced Plant Breeding. II; 3 cr. Problems in the improvement of cereal, legume, grass, fiber, sugar and other agronomic species. Pathological, physiological, and ecological relationships will be considered. Prerequisites: Genetics 104 and Agron. 130, or consent of instructor. Mr. D. C. Smith and staff.

180. Special Problems. I, II; *cr. Offered at Madison and the branch experiment stations. Prerequisites: Senior standing and consent of instructor. Staff.

190. Experimental Design. II; 3 cr. The application of statistical methods to laboratory and field experiments. Prerequisite: Agron. 36, or a course in statistics or consent of instructor. Mr. Torrie.

200. Research. Yr; *cr. Prerequisites: Gradute standing and consent of instructor. Staff.

ANIMAL HUSBANDRY

Professors Bohstedt, Darlow, *chairman*, Fuller, Lacey; Assistant Professor Fargo; Instructors Bray, Hamilton, Ross.

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. Mr. Darlow, Mr. Fuller, Mr. Ross, 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 or consent of instructor. 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 two credits in Dy. Husb. 5. Prerequisites: Sophomore standing and An. Husb. 1. 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. or Dy. Husb. 1. Mr. Fargo.

50. MEAT, SELECTION AND USE. II; 1 cr. (War Emergency course). Meat nutrition; meat identification, grading, and inspection; prices and uses of retail cuts. Use of freezer lockers for meat storage. Available to women only. Mr. Bray.

100. THESIS. Yr; 2 cr. Prerequisites: Senior standing and consent of instructor. Staff.

105. MEAT, SELECTION AND USE. II; 2 cr. The composition and characteristics of meat from different animals; identification, preservation, comparative values and utilization of various grades and cuts. Prerequisites: A course in bacteriology and in biochemistry. Mr. Fargo.

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 by those having elected Dy. Husb. 126. 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. or Dy. Husb. 1. Mr. Darlow, Mr. Ross.

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. or Dy. Husb. 1. 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. May not be elected for credit by those having elected Dy. Husb. 134. Prerequisite: An. or Dy. Husb. 1, Genetics 1, or consent of instructor. 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. Prerequisite: Junior standing. Mr. Bohstedt.

180. SPECIAL PROBLEMS. I, II; *cr. Prerequisites: Senior standing and consent of instructor. Staff.

200. RESEARCH. Yr; *cr. Study of a specific problem in animal husbandry. Prerequisites: Graduate standing and consent of instructor. Staff.

BIOCHEMISTRY

PROFESSORS ELVEHJEM, HART, *chairman*, LINK, PETERSON, PHILLIPS, STEENBOCK; ASSOCIATE PROFESSORS BAUMANN, JOHNSON, STRONG, TOTTINGHAM; INSTRUCTOR QUACKENBUSH.

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: Chem. 1b. Mr. Elvehjem.

3. FOOD BIOCHEMISTRY. I; 4 cr. Lectures and laboratory work on the chemistry and metabolism of the essential food constituents: carbohydrates, fats, and proteins. Required of all students in home economics. Prerequisite: Chem 1b. Mr. Peterson, Mr. Strong.

100. THESIS. Yr; 2 cr. Prerequisites: Senior standing and consent of instructor. 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: Chem. 12, 120 and 121. Mr. Elvehjem, Mr. Hart, Mr. Link, Mr. Peterson, Mr. Steenbock, Mr. Tottingham.

120. PLANT BIOCHEMISTRY. II; 2-5 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: Chem. 1b and 120. 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: Chem. 12, 120 and 121.

125. ANIMAL METABOLISM AND VITAMINS. II; 3 or 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: Biochem. 110 or consent of instructor. 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 and swine. Prerequisite: Biochem. 110 or 121 or consent of instructor. 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 for lectures, and Agr. Bact. 1 for laboratory, or consent of instructor. Mr. Peterson, 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, 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, and major in biochemistry. Mr. Link.

133. SEMINARY (JUNIOR). Yr; 1 cr. First semester: Mr. Link, Mr. Baumann. Second semester: Mr. Phillips, Mr. Strong.

200. RESEARCH. Yr; *cr. Prerequisites: Graduate standing and consent of instructor. 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.

233. SEMINARY (SENIOR). Yr; 1 cr. Original articles of importance are studied in detail to broaden the understanding of biochemical problems and to stimulate further research. Staff.

DAIRY HUSBANDRY

PROFESSORS BOHSTEDT, HEIZER, *chairman;* ASSOCIATE PROFESSOR RUPEL; ASSISTANT PROFESSORS COLLENTINE, CRAMER, HARRIS, VERGERONT, WERNER; INSTRUCTORS BARRETT, LUNDQUIST.

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.

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. Mr. Barrett, Mr. Lundquist, and animal husbandry staff.

4. Elements of Dairy Husbandry. I; 2 cr. Introduction to the field of dairy production; a survey course. Required of majors in dairy husbandry. Prerequisite: An. or Dy. Husb. 1. Mr. Barrett.

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 An. Husb. 3. Prerequisite: An. or Dy. Husb. 1. 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 the success or failure of leading breeding establishments. Pedigree studies of important families. Prerequisite: An. or Dy. Husb. 1. Mr. Heizer, Mr. Barrett.

100. Thesis. Yr; 2 cr. Prerequisites: Senior standing and consent of instructor. Staff.

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. May not be elected for credit by those having elected An. Husb. 126. Mr. Bohstedt, Mr. Roche.

133. Dairy Cattle and Milk Production. II; 3 cr. Dairy herd management, care and replacement. An inspection tour costing two to three dollars is included. Prerequisites: An. or Dy. Husb. 1 and preferably Dy. Husb. 126. 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; control of characters of economic importance; progeny tests and herd analysis. May not be elected for credit by those having elected An. Husb. 134. Prerequisites: An. or Dy. Husb. 1, Genetics 1, or consent of instructor. 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. Prerequisite: Junior standing. Mr. Bohstedt.

180. Special Problems. I, II; *cr. Prerequisites: Senior standing and consent of instructor. Staff.

200. Research. Yr; *cr. Study of a specific problem in dairy husbandry. Prerequisites: Graduate standing and consent of instructor. Staff.

DAIRY INDUSTRY

Professors Jackson, *chairman*, Price, Sommer; Associate Professors Thomsen, Weckel; Assistant Professor Wallenfeldt; Instructor Nusbaum.

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. Mr. Jackson, Mr. Thomsen, Mr. Weckel.

41. STANDARD METHODS OF ANALYSIS. II; 3 cr. (War Emergency course). Standard methods of chemical and bacteriological analysis used in dairy plants and in military organizations. Prerequisites: Chem. 1b and non-major in dairy industry. Mr. Jackson, Mr. Weckel.

42. STANDARDS OF QUALITY FOR PRODUCTION AND DISTRIBUTION. II; 3 cr. Legal standards for dairy products; civil and military regulations for milk production, plant operation, inspection and grading. Prerequisite: Sophomore standing. Mr. Thomsen, Mr. Weckel.

100. THESIS. Yr; 2 cr. Prerequisites: Senior standing and consent of instructor. 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: Dy. Ind. 1. Mr. Jackson, Mr. Thomsen.

104. CHEESE. II; 4 cr. Commercial practices and principles of curd-making and cheese-ripening. Prerequisite: Dy. Ind. 1. 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: Dy. Ind. 1. 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: Dy. Ind. 1. 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. 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. Mr. Sommer.

180. SPECIAL PROBLEMS. I, II; *cr. Prerequisites: Senior standing and consent of instructor. Staff.

200. RESEARCH. Yr; *cr. Experimental study of problems in dairy manufacturing. Prerequisites: Graduate standing and consent of instructor. Staff.

ECONOMIC ENTOMOLOGY

PROFESSORS FLUKE, *chairman*, WILSON; ASSOCIATE PROFESSORS ALLEN, FARRAR; ASSISTANT PROFESSORS LILLY, SEARLS; INSTRUCTORS CALLENBACH, 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. Mr. Fluke.

10. ELEMENTARY BEEKEEPING. II; 3 cr. Elementary principles of beekeeping. Mr. Farrar.

100. THESIS. Yr; 2 cr. Prerequisites: Senior standing and consent of instructor. Staff.

102. INSECT MORPHOLOGY AND TAXONOMY. I; 3 cr. Prerequisite: Econ. Ent. 1 or consent of instructor. Mr. Fluke.

103. ORCHARD INSECTS. I; 2 cr. A study of the insect pests of the orchard and bush fruits. Prerequisite: Econ. Ent. 1 or 102, or a course in zoology. Offered 1943-44 and alternate years. Mr. Fluke.

105. FIELD CROP AND GARDEN INSECTS. II; 2 cr. A study of the insect pests of field, garden, and truck crops. Prerequisite: Econ. Ent. 1 or 102 or a course in zoology. Offered 1943-44 and alternate years. Mr. Searls.

107. PRINCIPLES OF INSECT CONTROL. I; 3 cr. The preparation, uses and toxicities of insecticides and their applications. Prerequisites: Chem. 1b and consent of instructor. Offered 1942-43 and alternate years. Mr. Allen.

120. INSECT ECOLOGY. II; 3 cr. Insects in their relation to their environment. Prerequisites: Econ. Ent. 1 or 102, or a course in zoology. Offered 1942-43 and alternate years. Mr. Lilly.

123. TAXONOMY OF INSECT LARVAE. I; 3 cr. The identification and morphology of immature insects. Prerequisite: Econ. Ent. 102 or consent of instructor. Offered 1942-43 and alternate years. 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. Prerequisites: A course in entomology and plant pathology or consent of instructor. Offered 1943-44 and alternate years. Mr. Searls.

130. SEMINARY. I, II; 1 cr. Prerequisite: Senior standing. Mr. Wilson.

180. SPECIAL PROBLEMS. I, II; *cr. Prerequisites: Senior standing and consent of instructor. Staff.

200. RESEARCH. Yr; *cr. Study of a specific problem in economic entomology. Prerequisites: Graduate standing and consent of instructor. Staff.

FOREST PRODUCTS

Students who want to obtain a degree in forestry may take the pre-forestry course explained on pages 200-201, and then complete the work at another institution where a degree in forestry is offered.

The courses described below are offered by the United States Forest Products laboratory in cooperation with the University of Wisconsin. The courses, which are offered in logical sequence, consist of subject matter with which anyone, who intends to go on into the fields of wood utilization or its related branches, should be thoroughly

familiar. For students in agriculture, three of the courses, 1, 102, and 119 may be taken as agricultural electives; courses 101 and 103 may be taken as non-agricultural electives.

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. Mr. Tiemann.

101. Properties of Wood. I; 2 cr. Structure of wood as related to its properties. Physical, mechanical, and chemical properties; pulping and gluing characteristics; relation of defects and fungi to wood properties. Prerequisite: Forest Products 1. Offered 1943-44 and alternate years. Mr. Koehler and staff.

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: Elementary chemistry and physics or consent of instructor. Mr. Tiemann.

103. Industrial Chemistry Applied to Forest Products. II; 2 cr. Lectures describing industrial chemical processes that use wood and wood waste; wood distillation and preservation; and the chemistry of various forest products. Prerequisites: Chemistry 120 and 121. Offered 1943-44 and alternate years. Staff.

119. Fungus Deterioration of Forest Products. I; 2 cr. (Same as Plant Pathology 119.) A survey of the cause and prevention of stains and decay in forest products, and control measures. Prerequisites: Plant Path. 101 and 104. Offered 1942-43 and alternate years. Miss Richards.

200. Research. Yr; *cr. Prerequisites: Graduate standing and consent of instructor. Staff.

GENETICS

Professors Brink, *chairman*, Cole, Irwin, Rieman; Associate Professors Casida, Cooper, Neal; Assistant Professors Chapman, Smith; 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. Mr. Chapman and staff.

100. Thesis. Yr; 2 cr. Prerequisites: Senior standing and consent of instructor. 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 Physiol. 3 or Vet. Sci. 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 and staff.

180. Special Problems. I, II; *cr. Prerequisites: Senior standing and consent of instructor. Staff.

200. Research. Yr; *cr. Prerequisites: Graduate standing and consent of instructor. Animal genetics, Mr. Cole, Mr. Irwin, Mr. Chapman. Plant genetics, Mr. Brink, Mr. Rieman, Mr. Cooper, Mr. Smith. Physiology of reproduction, Mr. Casida.

210. Recent Advances in Genetics. II; 2 cr. Offered 1943-44 and alternate years. Prerequisite: Consent of instructor. Mr. Irwin and staff.

211. Recent Advances in Genetics. II; 2 cr. Offered 1942-43 and alternate years. Prerequisite: Consent of instructor. Mr. Irwin and staff.

220. Seminary. Yr; 1 cr. Prerequisite: Consent of instructor. Mr. Cole and staff.

(For courses in probability and statistics see Math. 118, 135, 137, and Agron. 36.

HORTICULTURE

Professors Johnson, Milward, Moore, *chairman*, Rieman, Roberts; Associate Professors Aust, Longenecker; Assistant Professors Combs, Kuehner, Munger; Instructors Allington, Attoe, Elfner, 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 gardening are not required to count as credits in their major the following courses in the Department of Horticulture: Horticulture 1, 3, 5, and 16. Landscape majors may substitute Art Education 50 for Animal Husbandry 1 and Civil Engineering 117 or 118 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. Mr. Moore.

3. Vegetable Gardening. II; 3 cr. The growing of vegetables out of doors. Practical work in the gardens. Mr. Moore.

5. Small Fruit Culture. I; 2 cr. Culture of cane, bush and other small fruits. Offered 1942-43 and alternate years. Mr. Moore.

6. Principles of Landscape Design. I—Annually; II—Offered 1942-43 and alternate years; 3 cr. First semester—designed primarily for students in landscape gardening. Second semester—designed for students not majoring in landscape gardening. An inspection trip is required. Mr. Aust.

7. Plant Propagation. II; 2 cr. Principles and practices involved in propagating horticultural plants. 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 1943-44 and alternate years. Mr. Moore.

12. Elementary Home Grounds Design. II; 3 cr. A continuation of Hort. 6. An inspection trip is required. Prerequisite: Hort. 6 or consent of instructor. Mr. Aust, Mr. Longenecker.

13. Lawns. I; 2 cr. A study of ground forms, terracing, grading, seeding, estimating. Prerequisite: Consent of instructor. Offered 1942-43 and alternate years. Mr. Longenecker.

14. Landscape Construction Problems. Yr; 3 cr. Prerequisite: Hort. 6. Offered 1943-44 and alternate years. Mr. Longenecker.

16. Crop Identification and Standards. I; 2 cr. (Same as Agronomy 16.) A laboratory study of the classification, identification and standards of excellence of field, orchard and garden crops. Only one credit of this course may be counted toward a major in horticulture. Prerequisite: Junior standing. Mr. Moore, Mr. Holden.

100. Thesis. Yr; 2 cr. Prerequisites: Senior standing and consent of instructor. Staff.

101. Advanced Home Grounds Design. I; 3 cr. Design of estate, country home grounds, and related problems. Prerequisites: Hort. 6 and 12. Offered 1943-44 and 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. Prerequisites: Hort. 6 and 12. Offered 1943-44 and alternate years. Mr. Aust.

104. Landscape Plants. Yr; 2 cr. First semester: A study of plant forms, color and texture in landscape design. Second semester: Advanced study of annuals and herbaceous perennials. Prerequisite: Hort. 6. Offered 1942-43 and alternate years. 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. Mr. Roberts.

180. Special Problems. I, II; *cr. Prerequisites: Senior standing and consent of instructor. Staff.

192. Rural Planning. II; 3 cr. Principles of rural-regional planning applied to a county. Prerequisite: Consent of instructor. Mr. Aust.

200. Research. Yr; *cr. Prerequisites: Graduate standing and consent of instructor. Staff.

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. 101a, 101b, or 103a, 103b, and 118, and 137. Mathematics 102a and 102b may be taken in place of Mathematics 101a, 101b, or 103a, 103b.

71. Mathematics for Agricultural Students. I; 4 cr. For students presenting one unit 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 hours of lecture and three hours of laboratory. Prerequisites: Math. 1b or 3a, and consent of instructor. Mr. Eisenhart.

(For students interested in the application of statistics to biology, the Department of Agronomy offers course 36, Biometry, 3 cr.)

PLANT PATHOLOGY

PROFESSORS DICKSON, DUGGAR, GILBERT, KEITT, *chairman*, RIEMAN, RIKER, VAUGHAN, WALKER; ASSISTANT PROFESSORS ALLISON, BRANN, DARLING; INSTRUCTORS HENRY, LARSON; LECTURER RICHARDS.

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 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: Bot. 1 and Agr. Bact. 1. Mr. Riker, Mr. Dickson, and staff.

100. THESIS. Yr; 2 cr. Prerequisites: Senior standing and consent of instructor. 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. Prerequisites: Plant Path. 7 or Agr. Bact. 1 and Plant Path. 104. 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. Mr. Riker.

104. MORPHOLOGY OF FUNGI. I; 3 cr. (Same as Botany 104.) Prerequisite: Bot. 1. 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 1943-44 and alternate years. 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 1943-44 and alternate years. Mr. Keitt.

119. FUNGUS DETERIORATION OF FOREST PRODUCTS. I; 2 cr. (Same as Forest Products 119.) A survey of the cause and prevention of stains and decay in forest products, and control measures. Prerequisites: Plant Path. 101 and 104. Offered 1942-43 and alternate years. 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 1942-43 and alternate years. Mr. Walker.

180. SPECIAL PROBLEMS. I, II; *cr. Prerequisites: Senior standing and consent of instructor. Staff.

200. RESEARCH. Yr; *cr. Prerequisites: Graduate standing and consent of instructor. Staff.

220. ADVANCED MYCOLOGY. Yr; 2 cr. (Same as Botany 220.) Prerequisites: Plant Path. 101 and 104. Offered 1942-43 and alternate years. Mr. Gilbert.

221. CLASSIFICATION OF PARASITIC FUNGI. Yr; *cr. (Same as Botany 221.) Prerequisite: Bot. 104 or Plant Path. 101. Mr. Backus, Mr. Green.

223. SEMINARY. Yr; 1 cr. Mr. Keitt and staff.

249. SPECIAL PHYSIOLOGY OF PATHOGENIC FUNGI. II; 2 cr. (Same as Botany 249.) Prerequisite: Bot. 146. Mr. Duggar.

252. CYTOLOGY OF FUNGI. II; 2 cr. (Same as Botany 252.) Prerequisite: At least one semester of general cytology. Mr. Gilbert.

POULTRY HUSBANDRY

PROFESSORS HALPIN, *chairman,* HAYES; ASSISTANT PROFESSORS ANNIN, CRAVENS, MCGIBBON.

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 in poultry raising. Mr. Cravens, Mr. McGibbon.

8. MARKETING POULTRY PRODUCTS. I; 3 cr. A study of the facts that tend to produce quality in market poultry and eggs. Methods of preparing and marketing poultry and eggs. Mr. Annin.

100. THESIS. Yr; 2 cr. Prerequisites: Senior standing and consent of instructor. Staff.

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 Husb. 1. Offered 1942-43 and alternate years. Mr. Halpin, Mr. Cravens.

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 Husb. 1. Offered 1943-44 and alternate years. Mr. Cravens, Mr. McGibbon.

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 Husb. 1 or Genetics 1 or consent of instructor. Offered 1943-44 and alternate years. Mr. Halpin, Mr. McGibbon.

107. ADVANCED POULTRY MANAGEMENT. II; 3 cr. Influences of recent investigations in poultry husbandry as they affect modern methods of feeding, housing, breeding, care and management of poultry. Prerequisite: Poultry Husb. 1. Offered 1942-43 and alternate years. Mr. Halpin.

180. SPECIAL PROBLEMS. I, II; *cr. Prerequisites: Senior standing and consent of instructor. Staff.

200. RESEARCH. Yr; *cr. Prerequisites: Graduate standing and consent of instructor. Staff.

RURAL SOCIOLOGY

PROFESSOR KOLB, *chairman;* ASSOCIATE PROFESSORS BARTON, HILL, WILEDEN; INSTRUCTORS ANDERSEN, STENEHJEM.

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

minimum number of credits required in agricultural subjects. Second, courses may be counted 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 people as families, neighborhoods, villages, interest groups, and town-country and rural-urban relations; 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 Soc. 25 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: Course in elementary sociology or consent of instructor. 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 Soc. 25 or graduate standing. Mr. Wileden.

180. SPECIAL PROBLEMS. I, II; *cr. Prerequisites: Senior standing and consent of instructor. Staff.

200. RESEARCH. Yr; *cr. Prerequisites: Graduate standing and consent of instructor. 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*, ZEASMAN; ASSOCIATE PROFESSORS ALBERT, WILDE; ASSISTANT PROFESSORS JACKSON, MUCKENHIRN; INSTRUCTORS BERGER, HULL, NELSON, TURNER.

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 five credits from the following courses may be counted as a portion of the undergraduate major requirement in soils: Agricultural Bacteriology 123, Geology 1, Agronomy 102, and Agronomy 106.

1. SOILS AND SOIL FERTILITY. I; 4 cr. An introductory, general survey of the field. Prerequisite: Chem. 1a. Mr. Graul.

26. FERTILIZERS AND SOIL MANAGEMENT. II; 2 cr. Use, composition, and manufacture of fertilizers. Prerequisite: Soils 1. Mr. Graul.

100. THESIS. Yr; 2 cr. Prerequisites: Senior standing and consent of instructor. Staff.

106. Soil Erosion, Causes and Control. I; 4 cr. (Same as Agricultural Engineering 106.) Causes and control of erosion 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 Agr. Engr. 1 or consent of instructor. Mr. Muckenhirn, Mr. Zeasman.

121. Soil Analysis. II; 4 cr. Methods for determining soil reaction and available and total constituents. Prerequisites: Soils 1, Chem. 12, or consent of instructor. Mr. Truog.

122. Soil Physics. II; 3 cr. Physical properties, moisture relations, and methods of physical analysis of soils. Prerequisites: Soils 1 and Chem. 12 or course in college physics. Mr. Jackson.

123. Forest Soils. II; 3 cr. Properties and management in relation to silviculture and nursery practice. Prerequisites: Soils 1 and Bot. 1, or graduate standing. Mr. Wilde.

125. Soil Genesis, Classification and Mapping. II; 3 cr. Lectures and field work. The formation, characteristics, classification and mapping of soils and their climatic and agricultural relations. Prerequisite: Soils 1 or consent of instructor. Mr. Muckenhirn.

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. I, II; 1 cr. Prerequisite: Senior standing or consent of instructor. First semester, Mr. Truog; second semester, Mr. Muckenhirn.

180. Special Problems. I, II; *cr. Prerequisites: Senior standing and consent of instructor. Staff.

200. Research. Yr; *cr. Prerequisites: Graduate standing and consent of instructor. Staff.

VETERINARY SCIENCE

Professors Beach, *chairman*, Hadley, Herrick, Wisnicky; Instructors Morgan, Whitehair.

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. Mr. Hadley.

27. Fur Farming. I; 2 cr. Theory and practice of propagating fur-bearing animals, emphasis on methods used by successful fur farmers. Prerequisite: A course in zoology. Offered 1943-44 and alternate years. Mr. Wisnicky.

28. Principles of Veterinary Science. I; 2 cr. Nature and causes of diseases of farm animals. Prerequisite: Sophomore standing. Offered 1942-43 and alternate years. Mr. Hadley.

29. Animal Disease Prevention. II; 3 cr. Prevention and control of diseases of livestock and poultry. Prerequisite: Sophomore standing. Mr. Beach.

100. THESIS. Yr; 2 cr. Prerequisites: Senior standing and consent of instructor. Staff.

120. PARASITES OF DOMESTIC ANIMALS. I; 3 cr. Structure, life history, diagnosis and prevention of parasites of the lower animals. Prerequisite: Zool. 1 or Vet. Sci. 1. 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 1942-43 and alternate years. Mr. Hadley, staff.

180. SPECIAL PROBLEMS. I, II; *cr. Prerequisites: Senior standing and consent of instructor. Staff.

200. RESEARCH. Yr; *cr. Prerequisites: Graduate standing and consent of instructor. Staff.

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 in the fields 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. Mr. Leopold.

161. WILDLIFE MANAGEMENT TECHNIQUES. I; *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 and consent of instructor. Mr. Leopold.

200. RESEARCH. Yr; *cr. Prerequisites: Graduate standing and consent of instructor. 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's 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
An. or Dy. Husb	126—Livestock feeding	4
Biochem.	110—Principles of biochemistry	3 or 5
Biochem.	121—Dairy chemistry	3
Biochem.	125—Animal metabolism and vitamins	3-4
Dairy Ind.	124—Physical chemistry of dairy products	3
Econ. Ent.	102—Insect morphology and taxonomy	3
Econ. Ent.	120—Insect 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
		53-57

Students in this major must also carry at least 20 (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.

* Figures in parentheses ( ) apply to students who entered college *before* September 1, 1939.

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
Agronomy	102—Pastures and pasture problems	2
Agronomy	130—Improvement of agronomic plants	2-3
Biochemistry	110—Principles of biochemistry	3 or 5
Biochemistry	120—Plant biochemistry	2-5
Econ. Ent.	102—Insect morphology and taxonomy	3
Econ. Ent.	120—Insect ecology	3
Genetics	1—Principles of breeding	4
Genetics	104—Plant genetics	3
Horticulture	7—Plant propagation	2
Horticulture	122—Advanced pomology	2 or 4
Plant. Path.	7—Elementary plant pathology	3
Plant. Path.	101—Diseases of plants	3
Soils	26—Fertilizers and soil management	2
Soils	125—Soil genesis, classification and mapping	3
Soils	127—Soil science and plant nutrition	2
Thesis		4
		49-57

Students in this major must also carry at least 20 (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 agricultural products	3
Agr. Econ.	152—Farmer movements	3
Agr. Econ.	155—Prices of agricultural products	3
Agr. Educ.	103—Seminar	1-3
Agr. Educ.	111—Ext. work in agr. and home ec.	3
Agr. Journ.	1—Writing farm news	3
Agr. Journ.	3—Agricultural advertising	2
Agr. Journ.	103—Publicity 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
Thesis		4
		47-49

* Figures in parentheses ( ) apply to students who entered college *before* September 1, 1939.

Students in this major must also choose at least 20 (24)* elective credits outside of the College of Agriculture. It is suggested that these 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.	2-3
Economics	105—Money and banking	3
Economics	124—Taxation	3
Economics	130—Statistical methods[1]	3
Economics	142—Public utilities	3
Economics	173—The economics of consumption	3
Geography	106—Agricultural geography	3
Journalism	2—Newspaper reporting	3
Journalism	3—Newspaper desk work	3
Journalism	107—The community newspaper	3
Pol. Science	7—American government (national)	3
Sociology	1—Introductory sociology	3
Sociology	46—Introduction to anthropology	3
Sociology	132—Introductory social statistics[1]	3
Sociology	139—Social psychology	3
Sociology	140—Principles of sociology	3
Sociology	197—Personality and social adjustment	3
Speech	8—Extempore speaking	2
		52-53

[1] The two statistical courses are to be considered as parallel; only one is to be chosen.

PRE-THEOLOGICAL MAJOR

The University of Wisconsin, in cooperation with various theological seminaries, offers an opportunity for young men and women who are preparing for the rural ministry, to carry their pre-theological work in the College of Agriculture. Any person choosing this major should acquaint himself with the specific requirements of the theological seminary of his choice. Special note should be taken of any language requirements.

It is recommended that the student choosing this major shall follow the general plan of the Social Science major suggested above but shall make his choices in such a way as to secure at least one basic course in each of the following fields: Agricultural Economics, Economics (general), English Literature, History and Government, Philosophy, Psychology, Public Speaking, Sociology (general), and Rural Sociology.

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

* Figures in parentheses ( ) apply to students who entered college *before* September 1, 1939.

During the freshman and sophomore years, the student carries the subjects of the agricultural curriculum as outlined on pages 197 and 200. 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 sophomore year.

In the junior and senior years the student will carry 15 (16)* to 17 (18)* credits each semester. He will satisfy the requirements of the split major as described below. In addition he must select at least 20 (24)* credits outside of the College of Agriculture. Suggested courses are listed under the Commerce Section on this page.

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 agr. prod.	3
Agr. Econ.	127—Cooperation	3
Agr. Econ.	128—Marketing agricultural products	3
Agr. Econ.	155—Prices of agricultural products	3
Agr. Journ.	1—Agricultural news writing	3
Agr. Journ.	3—Agricultural advertising	3
Agr. Journ.	103—Publicity media and methods	2
		26

ELECTIVES OUTSIDE THE COLLEGE OF AGRICULTURE

The College of Agriculture curriculum prescribes that each student must select at least 20 (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 20 (24)* credits be elected from the following group. More than 20 (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	3
Economics	19—Economic history of the United States	2-3
Economics	146—Government and business	3
Economics	171—Personnel management	3
Geography	106—Agricultural geography	3
		36-37

* Figures in parentheses ( ) apply to students who entered college *before* September 1, 1939.

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 the 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 227.

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 227.

		Credits
Agr. Bact.	125—Food bacteriology	3
Agr. Engr.	5—Power and machinery	5
Agronomy (or Horticulture)	16—Crop identification and standards	2
Agronomy	120—Seed and weed control	3
Agronomy	130—The improvement of agronomic plants	2-3
Biochemistry	1—Elementary biochemistry	2 or 4
Biochemistry	110—Principles of biochemistry	3 or 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 (or Agronomy)	16—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
		41-46

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 227.

		Credits
Agr. Bact.	121—Dairy bacteriology	3
Agr. Bact.	125—Food bacteriology	3
Animal Husb.	3—Livestock selection	1-2
Animal Husb.	5—Meat production and carcass values	2
Animal Husb.	126—Livestock feeding	4
Animal Husb.	130—Swine and sheep production	3

		Credits
Animal Husb.	131—Horse and beef cattle production	3
An. or Dy. Husb.	135—Seminary	1
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
		42-44

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 227.

		Credits
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
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—Special problems	1-3
Drawing	1—Elements of drawing	3
Poultry Husb.	8—Marketing poultry products	3
		35-38

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 227.

		Credits
Agr. Econ.	106—Crop and livestock estimating	3
Agronomy	102—Pastures and pasture problems	2
Agronomy	106—Forage problems	3
Animal Husb.	2—History of breeds	2
Animal Husb.	3—Livestock selection	2
Animal Husb.	5—Meat production and carcass values	2
Animal Husb.	130—Swine and sheep production	3
Animal Husb.	131—Horse and beef cattle production	3
An. or Dy. Husb.	126—Livestock feeding	4
An. or Dy. Husb.	134—Livestock breeding	3
An. or Dy. 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

		Credits
Soils	1—Soils and soil fertility	4
Vet. Science	28—Principles of veterinary science	2
Vet. Science	29—Animal disease prevention	3
		46

In the sophomore year Biochemistry 1, Poultry Husbandry 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 227.

		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
An. or Dy. Husb.	126—Livestock feeding	4
Chemical Engr.	8—Metallography	2
Dairy Industry	108—Dairy mechanics	3
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
		55

In the sophomore year Poultry Husbandry 1, Dairy Industry 1, and Soils 1 should be selected.

6. THE FERTILIZER INDUSTRY

For a major in the Fertilizer 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 227.

		Credits
Agronomy	102—Pastures and pasture problems	2
Agronomy	106—Forage problems	3
Agr. Bact.	123—Soil bacteriology	3
Biochemistry	120—Plant biochemistry	2-5
Botany	146—Plant physiology	4
Chemistry	120—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
		36-41

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 227.

		Credits
Agronomy (or Horticulture)	16—Crop identification and standards	2
Agronomy	102—Pastures and pasture problems	2
Agronomy	104—Grain crops	3
Agronomy	106—Forage crops	3
Agronomy	120—Seed and weed control	3
Agronomy	130—Improvement of agronomic plants	2-3
Botany	129—Classification of cultivated plants	2-3
Botany	146—Plant physiology	4
Econ. Ent.	1—Elementary entomology	3
Econ. Ent.	105—Field crop and garden insects	2
Genetics	1—Principles of breeding	4
Genetics	104—Plant genetics	3
Horticulture	6—Principles of landscape design	3
Horticulture	7—Plant propagation	2
Horticulture (or Agronomy)	16—Crop identification and standards	2
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
Soils	26—Fertilizers and soil management	2
Soils	125—Soil genesis, classification and mapping	3
		53-55

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 227.

		Credits
Agr. Bact.	125—Food bacteriology	3
Agr. Bact.	126—Physiology of bacteria	3
Agr. Econ.	106—Crop and livestock estimating	3
Agronomy (or Horticulture)	16—Crop identification and standards	2
Agronomy	104—Grain crops	3
Agronomy	120—Seed and weed control	3
Agronomy	130—Improvement of agronomic plants	2-3
Biochemistry	110—Principles of biochemistry	3 or 5
Botany	129—Classification of cultivated plants	2-3
Botany	146—Plant physiology	4
Chemistry	12—Quantitative analysis	3
Chemistry	120—Organic chemistry	4
Chemistry	148—Introduction to physical and colloidal chemistry	3-5
Genetics	1—Principles of breeding	4
Horticulture (or Agronomy)	16—Crop identification and standards	2
Plant Path.	7—Elementary plant pathology	3
Plant Path.	101—Diseases of plants	3
Plant Path.	116—Diseases of field crops	2
		50-56

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 Horticulture)	16—Crop identification and standards	2
Animal Husb.	5—Meat production and carcass values	2
Biochemistry	110—Principles of biochemistry	3 or 5
Biochemistry	121—Dairy chemistry	2 or 5
Biochemistry	126—Animal nutrition	2
Chem. Engr.	15—Industrial chemistry	2 or 3
Chemistry 146-	147—Food chemistry	3-5
Dairy Ind.	108—Dairy mechanics	3
Dairy Ind.	124—Physical chemistry of dairy products	3
Horticulture (or Agronomy)	16—Crop identification and standards	2
Poultry Husb.	8—Marketing poultry products	3
		39-48

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—Publicity media and methods	2
Biochemistry	125—Animal metabolism and vitamins	3-4
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 natural sciences	3
Physics	61—General physics	5
		40-43

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. A student selecting the engineering aspect should choose the Civil Engineering curriculum outlined by the Department of Agricultural Engineering. Anyone selecting the soils-crops aspect of conservation should choose as his adviser a representative of the Department of Soils or Agronomy not later than the beginning of the junior year. A student must also obtain practical farm experience.

During the freshman and sophomore years the student carries the subjects of the agricultural curriculum as outlined on pages 197 and 200.

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 15 (16)* to 17 (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 a dagger [†] 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 and irrigation engineering	2
†Agronomy	102—Pastures and pasture problems	2
†Agronomy	106—Forage problems	3
Botany	129—Classification of cultivated plants	2-3
†Geology	1—General geology	5
Civil Engr.	118—Short course in surveying	3
Geology	136—Principles of erosion	2
Hydraulics	181—Hydrology	2
Soils	26—Fertilizers and soil management	2
†Soils or Agr. Engr.	106—Soil erosion	4
Soils	122—Soil physics	3
Soils	125—Soil genesis, classification and mapping	3
		41-42

The College of Agriculture curriculum requires that the student must select at least 20 (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

* Figures in parentheses ( ) apply to students who entered college *before* September 1, 1939.

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 for 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's 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
CEDERQUIST, DENA CAROLINE, *M.A.*, Instructor in Home Economics
COWLES, MAY LOUISE, *Ph.D.*, Associate Professor of Home Economics
DAWE, HELEN CLEVELAND, *Ph.D.*, Assistant Professor of Home Economics
HAAN, IRENE MARGARET, *M.S.*, Instructor in 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.*, Assistant Professor of 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
LEINDORFF, MRS. AGNES OLSON, *M.S.*, Instructor in Home Economics
MCAFEE, MARTHA ARMSTRONG, *B.S.*, Instructor in Home Economics
MANNING, HAZEL, *M.S.*, Professor of Home Economics
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MENDENHALL, MRS. DOROTHY REED, *B.A., M.D., Sc.D.*, Lecturer in Home Economics
MORTIMER, MRS. IVA R., *M.A., M.S.*, Instructor in Home Economics
MYRLAND, RUTH HENRIETTA, *B.A.*, Assistant to the Director
PARK, HELEN MARGARET, *M.S.*, Assistant Professor of Home Economics
PARSONS, HELEN TRACY, *Ph.D.*, Professor of Home Economics
PATTON, STELLA TROUT, *M.S.*, Assistant Professor of Home Economics
PERSONIUS, CATHERINE JANE, *Ph.D.*, Associate Professor of Home Economics
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, *M.S.*, Instructor in Home Economics
WAITE, HELEN, *M.A.*, Assistant Professor of 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 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 and have an opportunity to observe behavior problems of children.

INSTITUTION MANAGEMENT. The practice in institution 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 Division of Residence Halls where the student does intensive work for at least a semester.

ADMISSION

Requirements for admission will 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 fellowship, the Omicron Nu scholarship, the Dorothy Roberts Memorial scholarship, and the graduate 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. Two years of physical education are also required. All students including seniors, must carry at least 12 credits and not more than 17 credits each semester, unless given permission by the Executive Committee to do otherwise.

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 and a grade-point average of 1.5 on all courses taken in the College of Agriculture in order to be recommended for graduation.

Transfer students who enter with junior or senior standing, or who present two or more advanced standing credits in home economics subjects, may omit Home Economics 9.

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 not have 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 institution 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.

ELECTION OF HOME ECONOMICS COURSES BY LETTERS AND SCIENCE STUDENTS

Letters and Science students who have checked at the office of the Dean their compliance with regulations a, b, c, and d of section 16 of the Letters and Science bulletin, governing the election of studies outside of the College of Letters and Science, will be given permission under the Twenty Credit Rule, if they have the prerequisites, to elect from the following Home Economics courses: 2, 3, 6, 7, 8, 18, 20, 50, 109, 110, 116, 117, 119, and 127. Students will not be permitted to elect both Home Economics 2 and Art Education 50, or Home Economics 119 and Education 119. Special permission to take other courses in Home Economics must be obtained from the Dean.

MINORS FOR LETTERS AND SCIENCE STUDENTS

A minor for Letters and Science students who plan to teach home economics in small high schools of Wisconsin in combination with their major field should include 16 credits in Home Economics 2, 3, 5, 7, 8, 50 (1 credit), 109 (2 credits) or equivalent and Educational Methods 52.

MINORS FOR HOME ECONOMICS STUDENTS

Home Economics students with a major in food and nutrition or in clothing and textiles should include a minor in another phase of home economics.

(1) A teaching minor in food 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.

(3) A teaching minor in related art is 15 credits including Home Economics 2 or its equivalent, and courses elected from the following: 8, 18, 20, 95, and 194, in addition to Educational Methods 52.

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
Physical education	0		
	16		15

SOPHOMORE YEAR

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

Home Econ. 7—Housing and sanitation	3	Electives	16
Electives	12		
	15		16

SENIOR YEAR

Home Econ. 110-112—Household administration	4	Home Econ. 109—Humanics	4
Electives†	11	Electives†	12
	15		16

In addition to 10 credits of Chemistry, 4 to 6 credits of other sciences are required during the freshman and sophomore years, to be selected from the following list. Upon approval of the Executive Committee, a student may substitute one of these optional sciences for Chemistry 1b.

Agr. Bact. 4	4	Physics 61 or 65	5-6
Biochemistry 3	4	Physiology 1	4

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. 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 core of the first two years is 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, a difference in the science requirements in the sophomore year in the related art major and except that Home Economics 50 is not required for hospital dietetics. 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
Physical education	0		
	16		15

† May include Home Economcis 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.

SOPHOMORE YEAR

Physics 65**	3	Physics 65**	3
Home Econ. 5—Introduction to clothing study	2	Home Econ. 50—Textile chemistry	3
Biochemistry 3	4	Agr. Bact. 4‡—General survey	4
Physiol. 1—Elements of physiology*	4	Electives	5
Electives (Econ. 1a recommended)	3		
	16		15

* Five-year nursing course majors should substitute Physiology 4.
** Physics 61, 5 cr. may be substituted.
‡ Agricultural Bacteriology 1 may be substituted.

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 124 grade-points is required for the Bachelor of Science degree (Home Economics and Education). Students receiving this degree 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 73, The Child: His Nature and His Needs, 3 credits; 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, 2 credits**.

* Candidates for the University Teachers' Certificate who elect Educational Methods 156 for 4 credits to qualify for vocational schools will elect Educational Methods 52 for 3 credits only.
** May be a course in the teaching of the minor subject for two credits.

ACADEMIC MINOR. The State law requires that majors in a special field such as home economics shall have one teaching academic minor. That minor consists of 15 credits of college courses in any academic subject and a methods course in the minor subject. Chemistry, general science, social studies, English and foreign language have proved to be satisfactory academic minors in combination with a home economics major. A minor in chemistry for home economics students includes: Chemistry 1, 10 credits; Biochemistry 3, 4 credits; Textile Chemistry (Home Economics 50) 3 credits; Educational Methods 97, 2 credits.

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.

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 20 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 home management. Work at the home management house is also required.

Students who wish to qualify for teaching in a city vocational school are required to take courses in vocational guidance (Education 181 or 184), educational psychology, part time education (Education 157), and the teaching of home economics in the part-time school and rural vocational centers (Educational Methods 156). After three years of teaching the teacher should take the course in problems in teaching homemaking in the part-time school.

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 work, adult programs in home economics, and other courses recommended by the home economics extension staff.

HOME ECONOMICS WOMEN IN BUSINESS. Students preparing for commercial positions 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 for work on the women's page of 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, 145, 148 or 247; Group B—Sociology 2, 141 or 177, 150 or 249. The majority of positions in social welfare now require a year of graduate work in a recognized school of social work.

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 organizations, in medical clinics, and in university commons, tearooms and school cafeterias. This curriculum also provides basic training for research workers. The curriculum for the first two years is found on pages 240 and 241. 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

INSTITUTION 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

* For admission as student dietitians in approved hospitals and other institutions courses in education, psychology, sociology, economics, large quantity cookery, organic chemistry and institution 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.

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:

First Semester	Credits	Second Semester	Credits
Agr. Bact. 100—Thesis	2	Agr. Bact. 100—Thesis	2
Agr. Bact. 123—Soil bacteriology	3	Agr. Bact. 121—Dairy bacteriology	3
Agr. Bact. 125—Food bacteriology	3	Agr. Bact. 124—Advanced technique	3
Agr. Bact. 130—Determinative bacteriology	2-3	Agr. Bact. 126—Physiology of bacteria	3
Agr. Bact. 231—Seminary	1	Agr. Bact. 231—Seminary	1
Med. Bact. 102—Medical bacteriology	5	Vet. Science 126—Infection and immunity.	3
Zoology 111—Microtechnique	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. 8—House furnishings	2	Home Econ. 18—Interior design	2
Home Econ. 7—Housing and sanitation	3	Home Econ. 11—Problems in applied dress design	3
Home Econ. 10—Clothing economics	2	Electives	10
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 maga-

zines 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 chemistry	1		
Electives*	9		
	16		15

JUNIOR YEAR

Home Econ. 8—House furnishings	2	Home Econ. 18—Interior design	2
Home Econ. 7—Housing and sanitation	3	Home Econ. 94—Decorative textiles	3
Home Econ. 95—Weaving	2	Electives*	10
Electives*	9		
	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

* 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, Foreign 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.

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 sophomores 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. 6—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

*** May substitute Home Economics 117.

SENIOR YEAR

Home Econ. 110, 112—Household administration	4	Journ. 123—Women's department	2
Home Econ. 126—Adult programs in home economics	2	Agr. Journ. 103—Publicity methods	2
Journ. 3—Copy editing	3	Home Econ. 109—Humanics	4
Electives†	7	Electives†	8
	16		16

† May include Home Economics 100, thesis.

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 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

* May substitute Home Economics 117.

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, and 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.

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—repeat 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.

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. 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. 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. 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 1b for those taking course for 3 cr. Miss Abry.

97. ADVANCED 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 and senior standing. Miss Juaire.

100. THESIS. 4 cr. Prerequisites: Senior standing and consent of instructor. Miss Manning and staff.

104. HISTORY OF COSTUME. I; 2 cr. Costume from antiquity to the 18th century. Prerequisite: Senior standing. Miss Manning.

106. SEMINAR, AMERICAN COSTUME. II; 2 cr. From the American Revolution to the present day. Prerequisite: Senior standing. Miss Manning.

141. TEXTILES IN MERCHANDISING. II; 3 cr. Designed to meet the needs of students who expect to enter the business fields in clothing and textiles. Senior or graduate elective course. Prerequisites: Economics 1a and senior standing. 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 and senior standing. Miss Abry.

180. SPECIAL PROBLEMS IN TEXTILES AND CLOTHING. I, II; *cr. Prerequisites: Senior standing and consent of instructor. Miss Manning, Miss Juaire, Miss Abry.

200. RESEARCH IN TEXTILE CHEMISTRY. I, II; *cr. Prerequisites: Graduate standing and consent of instructor. Miss Manning and staff.

FOODS AND NUTRITION

PROFESSORS PARSONS, ZUILL, *chairman*; ASSOCIATE PROFESSORS COWLES, PERSONIUS, REYNOLDS; ASSISTANT PROFESSORS DAWE, HENDERSON, HUSSEMANN, PATTON, WAITE; LECTURER MENDENHALL; INSTRUCTORS CEDERQUIST, HAAN, MAYER, MORTIMER, ROBERTS.

3. INTRODUCTION TO FOOD STUDY. I, II; 3 cr. A study of the fundamental principles of food preparation and of the scientific basis for food preparation practices. Prerequisite: Chemistry 1a. Miss Personius and staff.

4. PROBLEMS OF FOOD SUPPLY. I; 3 cr. Economic approach to food study. Includes problems of food preservation, food buying and meal planning and preparation. Prerequisites: Home Economics 3, bacteriology and physics. Miss Hussemann, Mrs. Mortimer.

6. NUTRITION AND DIETETICS. I, II; 4 cr. Principles of nutrition and their application to feeding the family. Laboratory work includes the study of an adequate diet for individual and family needs, the use of laboratory animals and metabolism studies. Prerequisites: Home Economics 3, Physiology 1, Biochemistry 3. Mrs. Reynolds, Miss Haan, Mrs. Mortimer.

9. INTRODUCTION TO HOME ECONOMICS. I; 1 cr. An orientation course in home economics for freshmen. Miss Zuill and staff.

100. THESIS. 4 cr. Prerequisites: Senior standing and consent of instructor. Miss Zuill and staff.

105. EXPERIMENTAL FOOD STUDY. I, II; 2 cr. A study of the methods and techniques used in experimental work with foods. Application of scientific principles in interpreting experimental results. Prerequisites: Senior standing and consent of instructor. Miss Personius, Miss Hussemann.

117. SURVEY OF NUTRITION PRINCIPLES. I, II; 2 cr. Developments in the science of nutrition with application to practical dietary problems. 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. 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.

135. COMPARATIVE STUDIES IN FOODS. I; 2 cr. Selected problems in food preparation. Basic scientific principles and pertinent research studies considered. Effects of manipulative techniques and ingredients on quality and nutritive value compared. Prerequisite: Home Economics 4 or consent of instructor. Miss Personius.

180. SPECIAL PROBLEMS IN FOODS AND NUTRITION. I, II; *cr. Prerequisites: Senior standing and consent of instructor. Staff.

200. RESEARCH IN FOODS AND NUTRITION. I, II; *cr. Prerequisites: Graduate standing and consent of instructor. Miss Parsons, Miss Personius, Mrs. Reynolds

280. SEMINAR IN NUTRITION. Yr; 1 cr. Miss Parsons, Mrs. Reynolds.

INSTITUTION MANAGEMENT

22. MARKETING AND LARGE QUANTITY COOKERY. I, 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. 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, 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. Miss Patton and staff.

180. Special Problems in Institution Management. I, II; *cr. Prerequisites: Senior standing and consent of instructor. 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. Prerequisite: Junior standing in any college. Miss Cowles and staff.

7. Housing and Sanitation. I, II; 3 cr. Housing standards and conditions; home ownership, financing, house design from consumer viewpoint; government housing. Laboratory includes analysis, criticism and drawing of house plans; reading blueprints. Prerequisite: Home Economics 2. Miss Cowles, Miss Roberts, Miss Mayer.

72. Home Nursing. I, II; 1 cr. A two-hour laboratory course in first aid and home nursing. Prerequisite: Junior standing 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. Prerequisite: Senior standing and consent of instructor. Miss Zuill and staff.

109. Humanics. I, 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. Prerequisite: Senior standing. Miss Zuill, Dr. Mendenhall, Miss Roberts and Miss Dawe.

110. Household Administration. I, II; 3 cr. Family's income; income distribution; earning homemakers; standards of living; market devices; spending influenced by income, family size; budgeting; scientific management in household; consumer buying problems. Prerequisite: Senior standing. Miss Cowles.

112. Residence in Home Management House. I, II; 1 cr. Provides experience in various phases of scientific management applied to the home; considers personal development of the individuals and their group relationships in the house. Each student will pay $3.25 to cover cost of food during additional period of residence in Home Management House. Prerequisite: Home Economics 110 or concurrent registration. Miss Waite.

119. Development of the Young Child in the Home and the Nursery School. I, II; 2 cr. Emphasis on principles and problems of guidance. Observing and assisting at the nursery school. Prerequisite: Senior standing. Miss Dawe.

180. Special Problems in Housing and Household Administration. I, II; *cr. Prerequisites: Senior standing and consent of instructor. Staff.

220. Consumer Problems. II; 2 cr. Consumer in economic system; living standards; effect of income, market characteristics and war 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, land costs, credit, labor, materials and construction methods to housing. Legislation, housing education, government developments in housing, defense 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.**

111. Extension Work in Agriculture and Home Economics. II; 3 cr. Relationships and legal status of the various services for agriculture and home economics. Methods of organization and instruction used with adults and boys and girls. Mr. Clark and staff.

126. Adult Programs in Home Economics. II; 2 cr. Organization and administration of home economics work for adults in urban and rural centers. Planning of demonstrations, exhibits, radio programs and popular publications. Prerequisite: Permission of director. Staff.

156. (Educ. Methods) Teaching Homemaking in the Part-Time School and Rural Vocational Centers. Yr; 2 cr. Lect.; two cr. off-campus teaching. For teaching in George-Deen and city vocational schools. Building homemaking curricula for rural and urban centers; organization of adult homemaking programs; methods and materials. Prerequisites: Senior standing and Education 75. Miss Henderson.

180. Special Problems in Home Economics Education. I, II; *cr. Prerequisites: Senior standing and consent of instructor. Miss Henderson, Miss Zuill.

188. (Educ. Methods) Seminar in Home Economics Education. I; 2 cr. Recent trends, studies and research in home economics education. The changing philosophy in home economics; curriculum planning; evaluation of programs; individual problems. Prerequisites: Graduate standing, experience in teaching. Miss Zuill.

RELATED ART

Associate Professor Randolph, *chairman*; Assistant Professors Allen, Park; Instructors Leindorff, McAfee, Schlimgen.

2. Introduction to Related Art. I, II; 3 cr. Fundamentals of good design underlying selection of costume and home furnishing from a consumer standpoint. Opportunities in laboratory for work with color and actual materials. Mrs. Randolph and staff.

8. House Furnishing. I, II; 2 cr. Study of the home unit. Fundamentals of art underlying the use of materials in the home. Lectures and demonstrations. Prerequisites: Elementary course in design and sophomore standing. Miss Park.

18. Interior Design. I, II; 2 cr. Problems of planning and furnishing the home considering different economic and social aspects. Laboratory, demonstrations, field trips. Prerequisite: Home Economics 8. Miss Park, Miss Schlimgen, Mrs. Leindorff.

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. Mrs. Randolph, Mrs. Leindorff, Miss McAfee, Miss Schlimgen.

94. Decorative Textiles. II; 3 cr. Problems in 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. 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. Miss Allen.

100. THESIS. 4 credits. Prerequisites: Senior standing and consent of instructor. Mrs. Randolph and staff.

114. THE TECHNIQUE OF INTERIOR DESIGN. II; 2 cr. Practice through actual problems in interior design in stores and home. Prerequisites: Senior standing, Home Economics 18 and one semester of 116. Miss Park.

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 118 and junior standing. Miss Park.

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 standing. Mrs. Randolph.

180. SPECIAL PROBLEMS IN RELATED ART. I, II; *cr. Prerequisites: Senior standing and consent of instructor.

194. ADVANCED STUDIES IN RELATED ART. II; 2 cr. Analysis and interpretation of art problems; creative approach to organic design using actual materials; experience in assembling materials for home decoration, displays and demonstrations. Prerequisite: Home Economics 2 or an equivalent course in design. Mrs. Leindorff, Mrs. Randolph.

216. SEMINAR IN RELATED ART. II; 2-4 cr. Historical backgrounds; economic and practical aspects of art problems in the field of interior, costume, and food service. Prerequisites: Graduate standing and consent of instructor. Staff.

SCHOOL OF EDUCATION

C. J. Anderson, Dean

FACULTY

Allcott, Ruth Evelyn, *M.S.*, Instructor in the Teaching of Fine Arts; also Wisconsin High School

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

Bardeen, Ann, *B.S.*, Instructor in Physical Education (Anatomy)

Barr, Arvil Sylvester, *Ph.D.*, Professor of Education

Bassett, Gladys Barton, *M.A.*, Associate Professor of Physical Education

Borchers, Gladys Louise, *Ph.D.*, Associate Professor of Speech

Brown, Charles Edward, *MA..*, Lecturer in Art Education

Chase, Wayland Johnson, *M.A.*, Emeritus Professor of Education

Cronin, Katherine Lucille, *M.A.*, Associate Professor of Physical Education

Davis, Ira Cleveland, *M.A.*, Professor in the Teaching of Science, also Wisconsin High School; Chairman of the Department of Educational Methods

Denniston, Mrs. Helen Dobson, *M.D.*, Associate Professor of Physical Education

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.*, 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

Evans, Herbert Pulse, *Ph.D.*, Associate Professor of Mathematics

Eye, Glen Gordon, *Ph.M.*, Assistant Professor of Education; Principal of the Wisconsin High School, and Director of Practice Teaching

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

Goldgruber, John J., *B.S.*, Teacher, Industrial and Fine Arts, Wisconsin High School

Gordon, Edgar Bernard, Professor of Music

Grainger, Jennie Dyke, *M.S.*, Instructor in Physical Education

H'Doubler, Margaret Newell (Mrs. Wayne Claxton), *M.A.*, Professor of Physical Education

Henderson, Ruth Adele, *M.A.*, Assistant Professor in the Teaching of Home Economics, also Wisconsin High School

Hensey, Irene Anita, *M.S.*, Assistant Professor of Accounting

Hoard, Marjorie Jean, *M.A.*, Teacher of English, Wisconsin High School

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
KNIGHT, HELEN BERNICE, *M.A.*, Instructor in Physical Education
KROFF, ALEXANDER YALE, *M.A.*, Teacher of French, Wisconsin High School
LEA, H. MARGARET, *M.A.*, Instructor in Physical Education
LIDDLE, CLIFFORD STANLEY, *M.A.*, Assistant Principal, Wisconsin High School
LINDEGREN, RUTH M., *M.S.*, Instructor in Physical Education
LITTLE, JAMES KENNETH, *Ph.D.*, Associate Professor of Education; Chairman of the Department of Education
LIVERMORE, JOSEPH DOW, *B.S.*, Assistant Professor of Drawing and Descriptive Geometry
LOW, CAMILLA MARCIA, *M.A.*, Assistant Professor of Education
LOWMAN, GUY SUMNER, *B.Di., M.P.E.*, Professor of Physical Education; Chairman of the Course in Physical Education for Men
MCCLOY, WILLIAM ASHBY, *M.A.*, Instructor in Art Education
MACKENZIE, GORDON NOTH, *Ed.D.*, Associate Professor of Education
MALOOF, GEORGE JOHN, *M.D.*, Instructor in Physical Education (Anatomy)
MANSFIELD, ARTHUR WILLIAM, *M.S.*, Associate Professor of Physical Education; Baseball Coach
MARTING, CATHERINE LENORE, *M.A.*, Instructor in Physical Education
MASLEY, ARPAD LOUIS, *G.G., B.P.E.*, 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, Assistant Professor of Physical Education
NOHR, ROBERT, JR., *G.G., B.P.E.*, Professor of Physical Education, Acting Chairman, Course in Physical Education for Men
PELLA, MILTON ORVILLE, *B.E.*, Teacher of Science and Mathematics, Wisconsin High School
PHILLIPS, BURR WENDELL, *M.A.*, Associate Professor in the Teaching of History, also Wisconsin High School
POOLEY, ROBERT CECIL, *Ph.D.*, 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
SANGER, CARL E., *M.S.*, Assistant Professor of Physical Education
SCHULD, ELMER GEORGE, *M.A.*, Teacher of Mathematics, Wisconsin High School
SCHWARTZ, MARGUERITE MARY, *M.S.*, Instructor in Physical Education
SHEATS, PAUL HENRY, *Ph.D.*, Assistant Professor of Education
SMITH, DON KLIESE, *B.A.*, Teacher of Speech, Wisconsin High School
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
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
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, *M.A.*, Instructor in the Teaching of Latin; also Wisconsin High School
WILLING, MATTHEW H., *Ph.D.*, Professor of Education.
WILSON, DELLA FORD, *M.A.*, Associate Professor of Art Education
ZAWACKI, EDMUND I., *A.M.*, Assistant Professor of Polish
ZUILL, FRANCES, *M.A.*, Professor of Home Economics

PRINCIPALS AND TEACHERS IN OFF-CAMPUS SCHOOLS SUPERVISING PRACTICE TEACHERS, 1941-42

PUBLIC AND PAROCHIAL SCHOOLS, MADISON, WISCONSIN

ASHMAN, BENJAMIN H., Mathematics, Central Junior-Senior High School
AMUNDSON, LILY, Home Economics, Vocational and Adult Education School
BAKER, MRS. MARGUERITE, Commercial Subjects, Vocational and Adult Education School
BARNES, VOLNEY G., Supervising Principal, West Junior-Senior High School
BASKERVILLE, MRS. FLORENCE, Dramatics, Vocational and Adult Education School
BAUS, IRMA J., Physical Education, West Junior-Senior High School
BERGER, WALTER, Supervising Principal, Sherman Avenue School
BERINGER, BARBE, Art, Lakewood School
BORWELL, LAURA B., Physical Education, Washington Orthopedic School
BREZEE, MRS. ASENATH, Home Economics, Vocational and Adult Education School
BRUCE, MRS. HELEN B., Speech Correction, Franklin School
CARSWELL, MRS. ESTHER, Art, Longfellow School
CHISHOLM, AMY, Social Studies, East Junior-Senior High School
CHURCH, RICHARD C., Music, West Junior-Senior High School
COUNSELL, KATHRYN, Home Economics, Franklin School
DAUL, ELVERA T., English and Speech, East Junior-Senior High School
DAVEY, ETHEL, Social Science, East Junior-Senior High School
DROM, BEULAH, Physical Education, Public Schools
DIEL, MILTON L., Physical Education, Central Junior-Senior High School
FEMAL, JEROME T., Physical Education, West Junior-Senior High School
GEBHART, ANNA L., English, West Junior-Senior High School
GERLING, ESTHER, Physical Education, West Junior-Senior High School
GOTTSCHALK, MORGAN, Physical Education, East Junior-Senior High School
GRAHAM, A. R., Director, Vocational and Adult Education School
HENDRICKSON, MABEL, English, West Junior-Senior High School
HUGHES, VIOLET A., English, East Junior-Senior High School
HYDE, JOSEPH D., Social Studies, West Junior-Senior High School
ISELY, EDITH M., English, East Junior-Senior High School
JOHN, MRS. HELEN, Home Economics, Vocational and Adult Education School
JOHNSON, VIRGINIA, Art, Lowell School
JONES, WILLIS L., Physical Education, West Junior-Senior High School
KENTZLER, RUTH P., Speech, Central Junior-Senior High School
KLOSE, LEROY, Music, Central Junior-Senior High School

KNORR, MRS. ESTHER, Supervising Principal, Nichols School
LAYDEN, WINIFRED, Home Economics, Vocational and Adult Education School
LIDDLE, MRS. MILLICENT S., Social Studies, West Junior-Senior High School
LUGG, J. HENRY, Science, East Junior-Senior High School
MCCARTY, MRS. RUTH D., Speech, West Junior-Senior High School
MCKELLAR, ARLENE, English, West Junior-Senior High School
MACKIN, BEDA R., History, Central Junior-Senior High School
MARQUART, ROSALIA, Speech, East Junior-Senior High School
MORROW, ARCHIE W., Physical Education, East Junior-Senior High School
NORTH, ELSIE C., English, East Junior-Senior High School
OELLERICH, STEPHEN A., Supervising Principal, Franklin School
OLSEN, ANNE W., English, West Junior-Senior High School
ORCHARD, MRS. LORRAINE H., English, West Junior-Senior High School
ORMOND, MRS. SOPHIA, Home Economics, Vocational and Adult Education School
PATTERSON, MRS. IDA, Home Ecnomics, West Junior-Senior High School
RANDLE, FOSTER S., Supervising Principal, East Junior-Senior High School
RENNEBOHM, MRS. WINIFRED, Home Economics, West Junior-Senior High School
RICHTER, MRS. THEODORE J., Speech, West Junior-Senior High School
SAMP, MARY JANE, Spanish, West Junior-Senior High School
SCHINDLER, HELEN, Speech Correction, Dudgeon School
SHEPARD, MARGUERITE, Physical Education, Central Junior-Senior High School
SISTER ADELITHA, St. James School
SISTER ALPHONSUS MARY, Spanish, Edgewood High School
SISTER ANASTASIA, Holy Redeemer School
SISTER AUGUSTALIS, St. James School
SISTER JOHN BERCHMAN, St. James School
SISTER BERNARDE, Holy Redeemer School
SISTER CAROLYN, Holy Redeemer School
SISTER COSMAS, St. James School
SISTER DAMIAN, Principal, St. James School
SISTER ELVIRA, St. James School
SISTER HILARY, Holy Redeemer School
SISTER LONGINA, Principal, Holy Redeemer School
SISTER LOUISINE, St. James School
SISTER LOYOLA, St. James School
SISTER MILDRED, Holy Redeemer School
SISTER NATHALIA, Holy Redeemer School
SISTER ROSE CATHERINE, Supervising Principal, Edgewood High School
SISTER SIMEON, St. James School
SPRAGUE, MRS. MARY JANE, Speech Correction, Public Schools
STURTEVANT, MARGARET, Home Economics, Vocational and Adult Education School
WAEHLER, LEONARD A., Supervising Principal, Central Junior-Senior High School
WILKIE, EARL J., Physical Education, Edgewood High School
WILLIAMS, LEWIS R., Social Studies, East Junior-Senior High School

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ANDERSON, AGNES, Home Economics, High School, Oregon, Wisconsin
HANSEN, MRS. RUTH, Home Econmics, High School, Columbus, Wisconsin

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 41-62, 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). 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 page 259, will serve to accomplish this purpose; numbers I and III correspond to the Ph.B. requirements, and numbers II and IV to 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 260-271.)

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 260-271.)

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. 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 recommendation of the departments of the major and minor subjects, or the responsibile 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.

* 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 1a, 1b, 11, or 41 may be elected in satisfaction of this requirement.

† 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.

*** May include a course in the teaching of the minor subject for two credits.

For information concerning the graduation requirements in the four-year courses in Art Education, Applied Art, and Physical Education see pages 271-282.

The requirements for graduation in Agriculture and Education and Home Economics and education are given on pages 282, 283.

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

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, Cooperative Marketing* (first semester or second semester.)

The Wisconsin Department of Public Instruction has interpreted the law on conservation and cooperatives as applying to teaching majors in the fields named, but not to teaching minors.

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 his 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 requirements of *minors.* (Also, the requirements 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. (Candidates for the University Teachers' Certificate are advised to take History 10 (4 or 6 credits), History 1 (4 or 6 credits) and History 2 (4 or 6 credits). History 3 (10 credits) may be taken in place of History 1 and History 2.

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
103	Fiscal Policy	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	Cooperation	3
129	Cooperative Management Problems	3
133	Financial History of the U. S.	3
134	Economic History of the United States	2-3
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	Central Banking	3

Geography

		Credits
3	Economic Geography	3
6	World Survey of Human Geography (Physical)	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	Sectionalism and the Civil War	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
122a	American Economic Life (1789-1860)	3
122b	The Age of Big Business (1861-1942)	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.

		Credits
124	Recent History of the United States	3-6
141	English Constitutional History	3-6
180	Departmental Reading Course*	2-4

Philosophy

1	Introduction to Philosophy	3
11	Elementary Logic	3
25	Man and Nature	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	Rural Local 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	Constitutional Background of Social Legislation	3
152	Government and National Resources	3
165-6	American Political Thought	3-6
180	Departmental Reading Course*	2-4

Sociology and Anthropology

3	Introduction to Anthropology	3
125	Rural Social Trends	2
132	Introductory Social Statistics	3
139	Social Psychology	3
140	General Aspects of Human Relations	3
141	Poverty and Dependency	3
160	Marriage and Family	3-4
161	Criminology and Penology	3
163	Population Problems	3
174	The Modern City	3
177	Social Legislation	3
180	Departmental Reading Course*	2-4
197	Personality and Social Structure	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.

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, 166. (Please note also statutory requirement for certification, described on page 260.) 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 adopted to the needs of those taking a teachers' minor in botany.

Educational Methods 71. The Teaching of Biology. 2 or 5 credits.

* 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.

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 260.)

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 credits.

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

DON D. LESCOHIER, *Ph.D.*, Professor of Economics, *Chairman*

MAJOR. A minimum of 30 selected credits. (Please note also statutory requirements for certification described on page 260.)

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 287-292. For detailed information relative to the special requirements of courses in education for the University Teachers' Certificate, see page 259.

ENGLISH

RICARDO QUINTANA, *Ph.D.*, Professor of English, *Chairman*

By formal action the department recommends for the certificate all those whose general departmental rating is *B*– or above. It withholds recommendation from all those whose general departmental rating is below *B*–.

MAJOR. A minimum of 34 credits, including (a) Freshman English; (b) one of the following: 30, 32, 33, 40 (30 and 33 may not both 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: 57, 129, 131, 156, 157, 160, 161, 162; (e) not more than two of the following (one will suffice): 132, 134, 135, 169, 174; (f) a thesis or its equivalent; (g) 123, or 124; outside the department, Educational Methods 76 (5 cr.).

MINOR. Educational Methods 76 (2 cr.) and a minimum of 18 credits in advance of Freshman English, to be selected as follows: 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: 132, 134, 135; (b) one, and only one, among 37, 136, 137; (c) 169 and 174.

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 293.

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 269)

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 260, and departmental statement described on page 131 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 10b. These credits must include course 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 10b, 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 (DIVISIONAL MAJOR)

JAMES HOMER HERRIOTT, *Ph.D.*, Associate Professor of Spanish, *Chairman*

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 envoronment); 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 270). (5) Basic courses as follows:

	Credits
Anthropology 105—Indians of North, 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 48-50.

HISTORY

PAUL ALEXANDER KNAPLUND, *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

* Students who elect History 3 may not elect History 1 or 2.

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 260.)

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. (The attention of graduate assistants is called to Educational Methods 184, page 293.)

HUMANITIES (DIVISIONAL MAJOR)

For students who are candidates for the degree of Bachelor of Arts (Humanities) or Bachelor of Arts (Classical Humanities) and who are also candidates for the University Teachers' Certificate, with joint registration in the School of Education.

(I) Latin, 22 credits beyond Latin 10b. (II) Choice of two of the following: (1) History or a Social Science, 16 credits; (2) English, including courses numbered 30 or 33, 32, or 40, and a course in Shakespeare, 15 credits; (3) French or German, intermediate examination, (14) credits. (III) Satisfaction of the specific requirements for the degrees in the Humanities. (IV) Completion of the required courses for the University Teachers' Certificate.

The requirements for graduation and certification (bulletin of the School of Education, 1942-44, pp. 258, 260 ff.) are as follows: (I) A total of 124 credits and 124 grade-points. (II) Requirements for a teaching major and two teaching minor subjects will be satisfied by the blanket *divisional major*. (III) The course requirements of one sequence will be satisfied if the requirements for the B.A. degree in the Humanities are satisfied. (IV) (a) a rating by the Speech Examination Committee of the School of Education, or (b) a grade in Speech 1. (V) Recommendation required from both (a) the Department of Classics, and (b) Humanities Committee. (VI) Certificate of physical health and fitness from the University Medical Examiner. (VII) Completion of the following professional requirements (18 credits): Education 73, 74, and 75, Educational Methods 81, and one of the following: Educational Methods 84, 76, or 83, for two credits. (VIII) Special statutory requirements for those who choose History and Social Science, six credits.

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 credits.

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 11 (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 11 (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 81. The Teaching of Latin. 2 or 5 cr.

LIBRARY SERVICE

The Library School offers the following courses for those who are qualifying for positions as high-school teacher-librarians:

LIBRARY SERVICE 150. Library Service 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

RUDOLPH ERNEST LANGER, *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.

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. (The attention of graduate assistants is called to Educational Methods 184, page 293).

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 260.)

(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 260.)

Educational Methods 97. The Teaching of Science. 2-5 credits.

(For additional information consult Associate Professor Ira C. Davis, Wisconsin High School.)

PHYSICAL EDUCATION

(See Pages 277-282)

PHYSICS

LEONARD ROSE INGERSOLL, *Ph.D.*, Professor of Physics, *Chairman*

MAJOR. A minimum of 29 credits in physics 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 in physics selected from the courses listed for a major.

Educational Methods 97. The Teaching of General Science. 2-5 credits.

POLISH

EDMUND ZAWACKI, *A.M.*, Assistant Professor of Polish, *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. (The attention of graduate assistants is called to Educational Methods 184, page 293.)

SOCIOLOGY AND ANTHROPOLOGY

THOMAS CARSON MCCORMICK, *Ph.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.), 3 (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 260.)

MINOR. Sociology 1, 2, and 3 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 112, or 117, or 128 (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 credits.

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 credits.

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. (A student who satisfies the requirements of a major in *speech correction* must also satisfy the requirements of an academic minor for the University Teachers' Certificate, but does not need to satisfy the requirements of a second minor for a license to teach in the state of Wisconsin.)

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 credits.

Educational Methods 27. Methods in Speech Reading for Children. 3 credits.

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 260.)

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 credits.

COURSES IN ART EDUCATION AND APPLIED ART

LEADING TO THE DEGREES OF BACHELOR OF SCIENCE (ART EDUCATION) AND BACHELOR OF SCIENCE (APPLIED ART)

WILLIAM H. 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. Art has many uses directly related to war. These uses are introduced in the respective courses.

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) cultural knowledge of art through studio participation. The Department has several courses designed to be of service to 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 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 a later period.

Students registered in the College of Letters and Science desiring courses in art may elect for credit, without special permission of the Dean of that college, the following

courses: freshman and others, Art Education 50 and 51; sophomores and above, Art Education 52, 54, 55, 56, 62, 70, 71, 120, 140, 160 and 168, provided they have satisfied the prerequisites for such courses. Students registered in other colleges may secure permission from their respective deans. The elementary courses have been planned to meet the need 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 Union Workshop gives opportunity for remunerative art activities outside the classroom.

Through the student counsel, it is possible for students of this department to become active in organizing the Wisconsin Salon of Art and the Annual Student Exhibition, in which awards are made on a competitive basis. Through its director, the State Historical Museum cooperates with the department on problems of museum management.

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 (at present inoperative), and the Tiffany Foundation Scholarship for one summer of study at Cold Spring Harbor, New York.

The right to retain one specimen of work from each student is reserved by the Department.

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
COURSE IN ART EDUCATION

LEADING TO THE DEGREE OF BACHELOR OF SCIENCE (ART EDUCATION)

This teacher-training curriculum is planned to equip future teachers and supervisors of art for public or private schools, colleges and universities. A total of 124 credits and 124 grade-points is required for graduation. Of this number, 53-68 credits must be taken in departmental courses or their related options. It is also necessary to secure 18 credits in the Departments of Education and Educational Methods. If the student intends to teach in the state of Wisconsin, he must also have a teaching minor in an academic field. The certification regulations of the Wisconsin Department of Public Instruction provide that this minor shall consist of 15 credits of college courses in any academic subject. (The requirements for teaching minors for the University Teachers' Certificate are set forth in this bulletin, pp. 260 to 271, inclusive.) Students who intend to teach outside the state of Wisconsin may call at Dean Anderson's office (Room 111, Education-Engineering Building) for information concerning the requirements for the certification of teachers.

The Department of Art Education has well-equipped studios and courses guiding the development of the student's individuality and creative ability. The student's point-credit ratio (see page 30) in Art Education subjects must be not less than 1.3. Students who fail to maintain the grade-point requirements will be advised to withdraw from the department. The degree of Bachelor of Science (Art Education) and the University Teachers' Certificate are awarded upon the successful completion of the course.

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 through 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.

ART EDUCATION CURRICULUM

LEADING TO THE DEGREE OF BACHELOR OF SCIENCE (ART EDUCATION)

FRESHMAN YEAR

First Semester	Credits	Second Semester	Credits
English 1a—Freshman English	3	English 1b—Freshman English	3
History or Foreign Language	3-4	History or Foreign Language	3-4
Mathematics, biology or chemistry	4-5	Mathematics, biology or chemistry	4-5
Art. Educ. 50—Freehand drawing	3	Art Educ. 51—Freehand drawing	3
Departmental Electives	2	Departmental Electives	2
Draw. 7—Lettering—2 cr.		Draw. 8—Lettering—2 cr.	
Art Educ. 54—Clay modeling—2 cr.		Art Educ. 54—Clay modeling—2 cr.	
Physical activity requirements	0-(1)	Physical activity requirements	0-(1)
	15-16		15-16

SOPHOMORE YEAR

English 30a, 32a, 33a or 2a	3	English 30b, 32b, 33b or 2b	3
History or Foreign Language	3	History or Foreign Language	3
Art Educ. 53—Art Digest	2	Art Educ. 53—Art digest	2
Art Educ. 62—Elementary creative design	3	Art Educ. 62—Elementary creative design	3
Art Educ. 55—Life drawing	3	Drawing 1—Elements of drawing	3
Departmental Electives	2	Departmental Electives	2
Art Educ. 52—Elem. watercolor—2 cr.		Art Educ.52—Elem. watercolor—2 cr.	
Art Educ. 56—Elem. oil painting—2 cr.		Art Educ. 56—Elem. oil painting—2 cr.	
Drawing 9—Lettering—2 cr.			
	16		16

JUNIOR YEAR

Education 73—The child; his nature and needs	3	Education 74—The school and society	3
Departmental Electives	8	Departmental Electives	8
(See Table A)		(See Table A)	
Free Electives	5	Free Electives	5
	16		16

SENIOR YEAR

Education 75—The nature and direction of learning	5	Educational Methods 62—The teaching of art	5
Departmental Electives (See Table A)	4-9	Departmental Electives (See Table A)	3-9
Free Electives	2	Free Electives	2
	16		16

TABLE A

Art Education majors who have completed the prescribed art courses of the freshman and sophomore years (Art Ed. 50, 3 cr.; Art Ed. 51, 3 cr.; Art Ed. 53, 4 cr.; Art Ed. 55, 3 cr.; Art Ed. 62, 6 cr.), may elect between 34 and 49 credits from the following list, guided by their teaching interests and aptitudes. Before electing courses, conferences with departmental advisers are desirable.

Art Education

	Credits		Credits
Art. Ed. 18—Architectural drawing	2	Art Ed. 123—Industrial art design	3
Art Ed. 52—Elementary watercolor	2	Art Ed. 125—Illustration	3
Art Ed. 54—Clay modeling	2	Art Ed. 132—Adv. painting, portraiture	3
Art Ed. 56—Elementary oil painting	3	Art Ed. 140—Stage design	2
Art Ed. 61—Elementary school art and industrial arts	3	†Art Ed. 150—Advanced art problems	1-3
Art Ed. 63—Commercial contacts	3	Art Ed. 155—Museum research	2
Art Ed. 70—Art metal	3	**Art Ed. 156—Museum administration	2
Art Ed. 71—Pottery	3	*Art Ed. 157—Museum apprenticeship	2
Art Ed. 120—Pictorial composition	2	Art Ed. 160—Block printing and etching	3
		Art Ed. 164—Art construction	2
		Art Ed. 168—Advanced modeling	2

NON-DEPARTMENTAL COURSES: Not more than 10 credits to be counted on major.

Home Economics (Related Art)

H. E. 8—House furnishing	2
H. E. 18—Interior design	2
H. E. 20—Costume design & selection	2
H. E. 94—Decorative textiles	3
H. E. 95—Weaving	1
H. E. 114—Technique of interior design	2
H. E. 116—Traditional interior design	4
H. E. 121—Advanced costume design	2
	18

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
Drawing 8—Advanced lettering	2
Drawing 9—Advanced lettering	2
	6

Related Course

Physics 7—Photography	3

All students are advised to elect basic courses in Art History and Criticism; these do not apply on major.

MINOR IN ART EDUCATION

A minimum of 21 credits, to include Art Educ. 50, 3 cr.; 51, 3 cr,; 53, 2 cr.; 61, 3 cr.; 62, 3 cr.; Educational Methods 62, 2 cr.; 5 credits in approved departmental courses. (Students in the College of Letters and Science may anticipate this minor by electing Art Education 50, 51, and 62 before the junior year. These courses are free electives and may be taken without special permission of the Dean of that College.)

† Open to seniors and graduates by consent of instructor.
* Open only to seniors, and graduates.
** Open by consent of instructor.

COURSE IN APPLIED ART

LEADING TO THE DEGREE OF BACHELOR OF SCIENCE (APPLIED ART)

This cultural, professional and consumer-training course is a practical and valuable contribution to better living. If the student so desires, he may take a Selective Art Aptitude Test, administered by the Bureau of Vocational Guidance, to determine his aptitude.

The 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 possible only to a large institution.

Although transfers to the Course in Applied Art 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 options.

Requirements are listed below. Attention is called to the fact that a student must meet the basic requirements outlined in either *Sequence A* or *Sequence B*.

Sequence A—Basic Requirements:

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.

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: 9 credits. Philosophy 53 is recommended.

Sequence B—Basic Requirements:

FOREIGN LANGUAGE: Knowledge of one foreign language, evidenced by passing the intermediate examination, or one language throughout four semesters.

ENGLISH: 10 to 12 credits as follows: English 1, 6 cr.; English 30 or 33, 4-6 cr.; English 2, 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.

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, 2 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

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

5. Landscape Art

	Credits
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

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

Orientation

*A.E. 53—Art digest	4

Elective Requirements:

Twelve credits selected from the following list and six credits in free electives.

	Credits
Anatomy 39	4
Art History and Criticism (to include 54)	9
Classics 41	2-3
Commerce 13	3
Comparative Literature 67	2
Comparative Literature 68	2
English 134	3
History (History 111, 113, 122, 124, 134, 136 recommended)	12
Music 20	4
Philosophy 41	3
Sociology (Sociology 137, 139 recommended)	6
Speech 4	3
Speech 19a, 119	4
Physical Education 60	2
Physical Education 146	3
Physical Education 160	2

* Required year courses.
‡ Required courses, one semester.
† Required courses, one semester of either.

COURSE IN PHYSICAL EDUCATION AND ATHLETIC COACHING FOR MEN

LEADING TO THE DEGREE OF BACHELOR OF SCIENCE (PHYSICAL EDUCATION)

ROBERT NOHR, JR., ACTING 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. 1a or 1b) 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

	Credits		Credits
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	3	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	5	Electives	5-6
	16		15-16

DEPARTMENTAL ELECTIVES

Phys. Ed. 80—Community recreation	2	Physiological Chemistry 114	3

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, 9, and 10—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 conditioning and training	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 130 credits and 130 grade-points is required for graduation from this course.

The Course in Physical Education for Women is designed to prepare teachers for important positions in the profession of physical education. Requirements are planned

* As revised and in effect with the class of 1945 and thereafter.

to give a broad substantial foundation as a basis for sound technical training. To this end there is emphasis upon the basic sciences, applied sciences, educational psychology, and principles of education and teaching. In order to provide for cultural growth provision is made for courses in history, in English, and in other academic fields.

During her first semester a student who must do outside work to earn part of her expenses may not carry a full program.

At the end of the first year or later, if a student 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.

It is usually necessary for a student transferring from another college or university to spend extra time in completing requirements.

GRADUATE WORK. In addition otthe 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

SPECIFIC REQUIREMENTS

	Credits
A. Academic or Non-Professional Courses:	
English 1a and 1b	6
History or Mathematics	6- 8
Speech	6- 2
Science (including at least a year of chemistry and one semester of physics and one of zoology)	15-21
*English, Social Science, Foreign Language Option	6-10
Human Anatomy	5- 6
Physiological Chemistry	2- 3
Physiology (including general physiology and physiology of exercise)	6- 8
Physical Examination	2
	50-66
B. Education Courses: To include Education 73, 74, and 75; Education Methods 69; a course in Tests and Measurements in Physical Education; and a course in Health Education	18-21
C. Professional Courses: Practice, Principles and Technique of Physical Education Activities, at least six of which must be in Dance	23-25
P. E. 56—Kinesiology	2- 3
P. E. 175 and 176—Therapeutic Gymnastics	3- 4
P. E. 168—Administration of Physical Education	2
Elective in Major Field	4
	34-38
D. Electives	28- 5

* 6 credits in English or in social science or 10 credits in the literature of a foreign language.

GENERAL MAJOR SCHEDULE BY YEARS

(Planned to meet all course prerequisites as well as specific requirements.)

FRESHMAN YEAR

First Semester	Credits	Second Semester	Credits
English 1a—Freshman composition	3	English 1b—Freshman composition	3
History or Mathematics	3-4	History or Mathematics	3-4
Physics 65—General physics	3	Physics 65—General physics	3
Speech	2	Zoology 1—Animal biology	5
Electives	2-3	P. E. 30b—Physical Education practice	1
P. E. 30a—Physical Education practice	1		
	14-16		15-16

SOPHOMORE YEAR

Anatomy 36—Human anatomy	6	Chemistry 1a—General chemistry	5
Music 20, Sociology, English or Language	2-5	P. E. 56—Kinesiology	3
P. E. 40—Folk dance	2	P. E. 175—Therapeutic gymnastics	2
P. E. 31a—Physical Education theory, practice and technique	3	P. E. 41—Modern dance	1
		P. E. 31b—Physical Education theory, practice and technique	4
	13-16		15

SUMMER SESSION

	Credits
Chemistry 1b (second semester for Women Majors in Physical Education	5
Elective	1
	6

JUNIOR YEAR

First Semester	Credits	Second Semester	Credits
Physiological Chemistry 114	3	Physiology 116	3
Physiology 115	5	Educ. 75—The nature and direction of learning	4
Educ. 73—The child: his nature and his needs	3	Education 130	2
P. E. 60—Rhythmic form and analysis	2	P. E. 176—Therapeutic gymnastics	2
P. E. 32a—Physical Education theory, practice and technique	3	P. E. 61—Dance	1
		P. E. 32b—Physical Education theory, practice and technique	3
	16		15

SENIOR YEAR

Educational Methods 69	4	Educational Methods 69	2
P. E. 168—Administration in physical education	2	P. E. 198—Health education	2
Educ. 74—The school and society	3	Medicine 118—Physical examinations	2
Elective	2-3	Elective in Physical Education	2
P. E. 33a—Physical Education theory, practice and technique	2	Elective	5-6
		P. E. 33b—Physical Education theory, practice and technique	2
	15-16		15-16

DANCE MAJOR

There is a recognized demand today for well-prepared teachers of dance. The intellectual aspects of dance and its increasing advance into the fields of psychology, art, and education make it a study well worthy of academic recognition. The course is planned to provide the teacher with a comprehensive view of dance as such, as well as with necessary technical training. Requirements emphasize art, speech, music, and philosophy. Provision is made for courses in sports and therapeutic gymnastics to enable the teacher to qualify for various types of school and college positions.

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.

SPECIFIC REQUIREMENTS

	Credits
A. Academic or Non-Professional Courses	
English	12
History	6
Speech	6
Art	6- 9
Music	4- 6
Psychology and Philosophy	2- 6
Science (including one semester in a biological science and one in physics)	6-10
Physiology	4
Anatomy	5- 6
	51-65
B. Education Courses: To include Education 73, 74, 75; Educational Methods 69; and a course in Health Education	18
C. Professional Courses: Practice, Principles, and Technique of Physical Education Activities, at least six credits of which must be in activities other than Dance	22-28
P. E. 56—Kinesiology	2- 3
P. E. 168—Administration of Physical Education	2
P. E. 176—Therapeutic Gymnastics	2
Elective in Major Field	7- 9
	35-44
D. Electives	26-10

DANCE MAJOR SCHEDULE BY YEARS

(Planned to meet all course prerequisites as well as specific requirements listed above.)

FRESHMAN YEAR

First Semester	Credits	Second Semester	Credits
English 1a—Freshman composition	3	Art Education	3
History	3	English 1b—Freshman composition	3
Zoology 1—Animal biology	5	History	3
Art Education	3	Physics 17—Survey of physics	4
P. E. 35a—Dance practice	1	P. E. 35b—Dance practice	2
		P. E. 30b—Physical Education practice	1
	15		16

SOPHOMORE YEAR

	Credits		Credits
Physiology 17—Survey of physiology	4	P. E. 56—Kinesiology	3
Anatomy 36—Human anatomy	6	Speech	2
English 30a, 32a, 33a or 40a	3	English 30b, 32b, 33b or 40b	3
P. E. 36a—Dance practice and technique	2	Art History	3
P. E. 31a—Physical Education theory, practice and technique	1	P. E. 60—Rhythmic form and analysis	2
		P. E. 36b—Dance practice and technique	2
		P. E. 31b—Physical Education theory, practice and technique	1
	16		16

SUMMER SESSION

	Credits
Philosophy	2
Psychology	2
Art History	2
P. E. 31b—Physical Education theory, practice and technique	1
	7

JUNIOR YEAR

First Semester		Second Semester	
Speech	2	Education 75—The nature and direction of learning	4
Education 73—The child: his nature and needs	3	Music	2
Music	2	P. E. 176—Therapeutic gymnastics	2
P. E. 160—Advanced rhythmic form and analysis	2	P. E. 165—Dance composition	2-3
Elective	2	P. E. 37b—Dance practice and technique	2
P. E. 40—Folk dancing	2	P. E. 61—Dance	1
P. E. 37a—Dance practice and technique	2	P. E. 32b—Physical Education theory, practice and technique	1
P. E. 32a—Physical Education theory, practice and technique	1	Electives	2
	16		16-17

SENIOR YEAR

Educational Methods 69	4	Educational Methods 69	2
P. E. 168—Administration of physical education	2	Philosophy	3
P. E. 146—Theory and philosophy of dance	3	Education 74—The school and society	3
P. E. 133—Dance accompaniment	2-3	Health Education (P. E. 198)	2
P. E. 181—Thesis course	2	Electives	3-4
P. E. 38a—Dance practice and technique	2	P. E. 38b—Dance practice and technique	2
	15-16		15-16

(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 or second semester).

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 and a teaching minor, 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 recommendation 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.

Minor in Biology. Botany 1, 5 credits; Zoology 1, 5 credits; Agr. Bact. 1, 4 credits; Genetics 1 or Plant Path. 7, 4 or 3 credits; Agr. Econ. 117 or Geography 128, 3 credits; Educ. Methods 97, 2 credits; total credits, 22 or 23.

Minor in General 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 (2 credits).

HOME ECONOMICS AND EDUCATION

FRANCES L. ZUILL, *M. A.,* Professor of Home Economics, *Director*

MAJOR. To prepare for teaching home economics in high schools and in vocational schools, a student must fulfill the requirements in the general professional major, the clothing and textile major, or the food and nutrition major, and in addition, must include the following courses in education which are required for the University Teachers' Certificate:

	Credits
Educ. 73—The child: his nature and his needs	3
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	2
	18

Academic Minor. The certification regulations of the Wisconsin Department of Public Instruction provide that majors in a special field, such as home economics, shall have one teaching academic minor. That minor consists of 15 credits of college courses in any academic subject. This does not necessarily meet the requirements of a minor for the University Teachers' Certificate. Chemistry, general science, history, economics, political science, social studies, English, and foreign language have proved to be satisfactory academic minors in combination with a home economics major. A minor in chemistry for home economics students includes: Chemistry 1, 10 credits; Biochemistry 3, 4 credits; Textile Chemistry (Home Econ. 50), 3 credits; Educational Methods 97, 2 credits.

Minors for Students in the School of Education. A minor for School of Education students who plan to teach home economics in small high schools of Wisconsin in combination with their major field, must include 20 credits in Home Economics 2, 3, 5, 7, 8, 50 (1 cr.), 109 (2 cr.) or equivalent, and Educational Methods 52.

Minors for Home Economics Students. Home economics students, with a major in foods and nutrition or in clothing and textiles, should include a minor in another phase of home economics.

(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.

(3) A teaching minor in related art is 15 credits, including Home Economics 2 or its equivalent, and courses elected from the following: 8, 18, 20, 95, and 194, in addition to Educational Methods 52.

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.

* May be a course in the teaching of the minor subject for two credits.

** Candidates for the University Teachers' Certificate who elect Educational Methods 156 for four credits as preparation for teaching vocational home economics in high schools or vocational schools, will elect Educational Methods 52 for three credits only.

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. Mr. Stebbins, Mr. VanKoert, Mr. McCloy.

51. Freehand Drawing: Light and Shade. II; 3 cr. Prerequisite: Art Education 50. Mr. Stebbins, Mr. VanKoert, Mr. McCloy.

52. Watercolor. Yr; 2 cr. Prerequisite: Art Education 51. 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. Miss Wilson.

55. Advanced Drawing and Anatomy. Yr; 3 cr. Prerequisite: Art Education 51 or consent of instructor. Mr. Stebbins.

56. Elementary Oil Painting. Yr; 3 cr. Prerequisites: Art Education 50 and 51. Mr. McCloy.

61. Elementary School Art and Industrial Arts. Yr; 3 cr. Prerequisite: Junior standing. 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. Mrs. Annen.

63. Commercial Contacts. Yr; 3 cr. Emergency posters. Prerequisites: Art Education 7, 50 and 62. Mr. VanKoert.

70. Art Metal Yr; 3 cr. Problems in copper, silver, gold, pewter. Prerequisite: Art Education 62. Mr. VanKoert.

71. Elementary Pottery. Yr; 3 cr. Prerequisite: Art Education 62. Miss Wilson.

120. Pictorial Composition. I; 2 cr. Prerequisite: Consent of instructor. 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. Clay and wood, and their emergency uses. Mr. Varnum.

125. Illustration. Yr; 2 cr. Prerequisite: Art Education 55. Mr. Stebbins.

128. Principles of Camouflage. I, II; 3 cr. Prerequisite: Junior standing.

132. Advanced Painting and Portraiture. Yr; 3 cr. Prerequisite: Art Education 56. 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. Mr. Lane, Mr. Buerki.

150. Advanced Art Problems. Yr; 1-3 cr. Advanced work in: Painting, art metal, commercial contacts, pottery, watercolor. Open to seniors and graduate students. Prerequisite: Consent of instructor. Staff.

155. Design Research. II; 2 cr. Prerequisite: Elementary course in design. 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. Mr. Varnum.

164. Art Construction. Yr; 2 cr. Prerequisites: Junior standing and consent of instructor. Mr. McCloy.

168. Advanced Modeling. Yr; 2 cr. Prerequisite: Art Education 54 or consent of instructor. Miss Wilson.

180. Advanced Independent Study. Yr; *cr. Prerequisites: Open only to upper-group students with the consent of the chairman of department. Staff.

210. Seminary, Art Education. Yr; 2 cr. Prerequisite: Graduate standing or teaching experience. Mr. Varnum.

211. Independent Reading and Research in Art Education. Yr; 2 cr. Use of non-priority materials. Prerequisites: Graduate standing and major in art education. Mr. Varnum, Staff.

TEACHERS' COURSE

The Teaching of Art. See Educational Methods 62, page 293.

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. 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. Mr. Doke.

8. ADVANCED FREEHAND LETTERING. I, II; 2 cr. Continuation of Course 7, which is prerequisite. Mr. Doke.

9. ADVANCED FREEHAND LETTERING. I, II; 2 cr. Continuation of Course 8, which is prerequisite. Mr. Doke.

EDUCATION

PROFESSORS ANDERSON, BARR, EDGERTON, FOWLKES, TORGERSON, WILLING; ASSOCIATE PROFESSORS JENSEN, LITTLE, *Chairman*, MACKENZIE, RAGSDALE; ASSISTANT PROFESSORS LOW, ROTHNEY, SHEATS.

Students below the junior class are not admitted to courses in the Department of Education, without the written permission of the Chairman of the Department. Students electing 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* (page 259) 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 257-260 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.* Mr. Jensen, Mr. Little, Mr. Rothney, Mr. Torgerson.

74. THE SCHOOL AND SOCIETY. I, II; 3 cr. Overview of the American public school system, with special reference to the determining influences excercised by government, social groups, teachers, and current social conditions. Prerequisite: Junior standing. *Required of candidates for the University Teachers' Certificate.* Mr. Anderson, Mr. Fowlkes, Mr. Sheats, Mr. Willing.

75. THE NATURE AND DIRECTION OF LEARNING. I, II; 4 or 5 cr. (*4 cr.*, with *1 cr.* in educational practice, applies only to majors in Course in Physical Education—Women. *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. Little, Mr. Mackenzie, Mr. Ragsdale.

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 educational services of the modern school, supplied by supervisors, teachers, school nurses, curriculum specialists, guidance workers, clinical and school psychologists. Mr. Barr, Mr. Mackenzie.

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 1943-44 and in alternate years. Mr. Willing.

*209. Modern Systems of Psychology and Education. II; 3 cr. Critical study of the educational implications of 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 1942-43 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. 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. 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.) Mr. Jensen.

*120. Child Development (Psychology of 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. Mr. Little.

249. Seminary, Educational Psychology and Child Development. Yr; 2 cr. Mr. Jensen, Mr. Ragsdale.

IV. MEASUREMENT, STATISTICS, AND CLINICAL TECHNIQUES

112. Statistical Method Applied to Education. II; 3 cr. Statistical techniques used in educational research. Not offered 1942-43. Mr. Little.

128. Clinical Testing (Binet). I; 2-3 cr. Instruction and practice in the use of revised Binet scales of intelligence. 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 special 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 cr. Performance testing. Advanced practice in the use and clinical interpretation of individual tests of mental abilities. 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. 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. Fowlkes.

264. Seminary, Secondary School Organization and Administration. II; 2 cr. Prerequisite: Education 204 or consent of instructor. Offered in 1942-43 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. 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). Mr. Edgerton.

182. Clinical Studies in Guidance. I, 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 some time free to work with children. This time will be arranged, as far as possible to fit students' schedules. Selected students will be given opportunity to work in the Psycho-Educational Clinic. Mr. Rothney.

183. Job and Occupational Analysis. I; 2-3 cr. Basic principles, types, and methods of purposeful analysis appropriate 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). 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. Mackenzie.

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. Offered in 1942-43 and in alternate years. Mr. Mackenzie.

*174. Curriculum and Instructional Procedures: Curriculum Planning. I; 2-3 cr. Problems in the reorganization of the curriculum; planning for units of work and learning activities; state and local programs of curriculum construction. Mr. Mackenzie.

*175. Curriculum and Instrucuional Procedures. II; 3 cr. The management of instructional activities. An advanced survey of the principles and techniques involved in carrying forward the instructional activities of the modern school; designed for teachers, principals, supervisors, and directors of instruction; reading; field trips; class discussion and practice. Prerequisite: 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. I; 2 cr. Criticism and report upon current methods of teaching, library research, and experimental study of teaching methods under classroom conditions. Prerequisite: Graduate standing. Mr. Barr.

244. Seminary, Curriculum Construction. II; 2 cr. Opportunity to develop curriculum materials or work on individual problems in curriculum. Prerequisite: Consent of instructor. Mr. Mackenzie.

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 1942-43.

290. Field Practice in Supervision, Curriculum, and Method. I, II; 2-3 cr. Designed to supply first-hand experience in supervision, curriculum making, and teaching

through directed field practice. Students assigned to cooperating schools and activities according to needs. Mr. Barr, 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, evening-school 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. 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. 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 DAVIS, *Chairman*, EASUM, EVANS, E. B. GORDON, KIVLIN, NOHR, POOLEY, ROESELER, STOKE, WALTON, ZUILL; ASSOCIATE PROFESSORS BORCHERS, CRONIN, PHILLIPS; ASSISTANT PROFESSORS EYE, HENDERSON, HENSEY, L. JOHNSON, MILLIGAN, SUR, TRUMP, WEBER, ZAWACKI; INSTRUCTORS ALLCOTT, FREITAG, MORRISSEY, POWERS, SMITH, WEIGHTMAN.

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,* except that seniors may take the methods course in their minor field concurrently with Education 75. 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 Henderson.

62. THE TEACHING OF ART. I, II; 5 cr. Miss Allcott.

69. THE TEACHING OF PHYSICAL EDUCATION. Yr. 6 cr.; 4 cr. educational practice, 2 cr. theory. Prerequisite: Senior major in physical education. Miss Cronin and others.

70. THE TEACHING OF PHYSICAL EDUCATION (Men). 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, LATIN, AND SPANISH. I; 2 or 5 cr. Miss Johnson, Miss Weightman.

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.

93. THE TEACHING OF MATHEMATICS. II; 2 or 5 cr. 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 Service 150, page 268.)

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 Henderson.

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, Mr. Stoke.

188. SEMINAR IN HOME ECONOMICS EDUCATION. I; 2 cr. Recent trends, studies and research in home economics education. 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. II; 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 *SummerSessions* which are not listed in this announcement; for descriptions of these courses, see bulletins of the *Summer Session.*

PHYSICAL EDUCATION — MEN

PROFESSORS JONES, LOWMAN, MASLEY, NOHR, *Acting Chairman;* ASSOCIATE PROFESSOR MANSFIELD; ASSISTANT PROFESSORS FRANCIS, NICKERSON, RIPPE, SANGER, THOMSEN; INSTRUCTORS MISS BARDEEN, 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. Staff.

7. THEORY AND PRACTICE. II; 2 cr. Tactics, calisthenics, and elementary apparatus; class instruction in minor sports and swimming. Staff.

8. THEORY AND PRACTICE. I; 2-4 cr. Graded games, calisthenics, and nomenclature; football practice; basketball practice; minor sports. 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. 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. Staff.

11. THEORY AND PRACTICE. II; 2-4 cr. Physical education programs; baseball theory and practice; track and field practice; minor sports. 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. 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. Staff.

NOTE: In exceptional 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. 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. Dr. Maloof, Miss Hadley.

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. Masley.

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. Offered irregularly. 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, Mr. Sanger.

119b. PHYSICAL EXAMINATIONS AND THERAPEUTICS. II; 3 cr. Prerequisite: Physical Education 119a. Mr. Francis, Mr. Sanger.

130. TESTS AND MEASUREMENTS IN PHYSICAL EDUCATION. I; 2 cr. Prerequisite: Consent of instructor. Miss Glassow.

159. PLAY, RECREATION, AND LEISURE TIME PROBLEMS. I; 2 cr. Prerequisite: Physical Education 59 or consent of instructor. Mr. Masley.

164. SCHOOL HEALTH PROBLEMS. II; 3 cr. Prerequisites: Anatomy 39, Physiology 2 or Physical Education 119a and 119b. Dr. Denniston.

168. ORGANIZATION AND ADMINISTRATION OF PHYSICAL EDUCATION. II; 2 cr. Mr. Knapp, Mr. Mansfield.

178. PHYSICAL EDUCATION FOR ELEMENTARY AND SECONDARY SCHOOLS. II; 2 cr. Mr. Nohr.

180. ADVANCED INDEPENDENT STUDY. Yr; credit to be arranged. Prerequisite: Open only to upper-group students of senior rank. Staff.

200. RESEARCH. Yr; credit to be arranged. Staff.

263. Problems in School Health Education. II; 2 cr. Emphasizes individualized instruction in specific teaching and administrative problems in the school health program. Prerequisite: Physical Education 119b, or consent of instructor. Not offered 1942-43. Mr. Francis.

291. Problems in Orientation, 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. Not offered 1942-43. 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

Professors Trilling, *Chairman*, H'Doubler; Associate Professors Bassett, Cronin, Denniston, Glassow; Instructors Bardeen, Grainger, Knight, Lea, Lindegren, Marting, Meyer, Schwartz.

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.

15a. First Aid. I, II; 1 cr. Red Cross standard course. Dr. Denniston *et al.*

15b. First Aid. II; 1 cr. Red Cross instructors' course. Prerequisite: Red Cross standard certificate. Dr. Denniston *et al.*

20. Physical Education Practice. Yr; 0 cr. For juniors and seniors only. Discontinued after 1943-44. Staff.

*30, *31, *32, *33. Physical Education Theory, Practice, and Technique. Yr; 0-3 cr. Staff.

*35, *36, *37, *38. Dance Practice and Technique. 1-2 cr. Staff.

40. Folk and American Square Dancing, Tap Dancing. I; 2 cr. Miss Knight.

41. Modern Dance (Elementary). II; 1 cr. Miss H'Doubler.

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. Prerequisite: 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.

*61. Integrating Course in Dance. II; 1 cr. Staff.

*69. The Teaching of Physical Education (Educational Methods 69). Yr; 6 cr. Practice teaching in two age levels. Miss Cronin, Miss Bassett, Miss Purves.

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. 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 Knight.

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 Knight.

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. Dance Composition (Elementary Course). 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. Mrs. Grainger.

165. Dance Composition (Advanced Course). II; 2-3 cr. Theory and practice. Basic principles of form, content, and style. Creative experience in ritual and preclassic dance forms and original composition. Prerequisites: Dance major, P. E. 160, or consent of instructor. Miss Knight.

*168. Organization and Administration of Physical Education. I; 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. Advanced Independent Study. Yr; *cr. Prerequisite: Open only to upper-group students of senior rank. 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.

188. The Extra-Curricular Physical Education Program. I; 2 cr. Survey of current practices in elementary school, high school, and college. Organization of various activities, including pageants, co-recreation, sports days, etc. Problems of administration: leadership, facilities, schedules, etc. Miss Schwarz.

198. Health Education in the Schools. II; 3 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.

200. Research in Physical Education. Techniques of research required of all graduate students. I; 2 cr. Miss Glassow.

262. Research in Tests and Measurements. Yr; *cr. 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.

*299. JOURNAL CLUB. Yr; 1 cr. Weekly meetings. Reports on current physical education studies.

TEACHERS' COURSE

THE TEACHING OF PHYSICAL EDUCATION. See Educational Methods 69, page 293.

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 287-292.

See also announcements of the Department of Art Education, the School of Music, and the Medical School for subjects required of physical education students.

Additional elective courses are offered in the *Summer Session,* descriptions of which may be found in the bulletins of the *Summer Session.*

Courses for graduate students are listed in the bulletin of the Graduate School.

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MILWAUKEE CITY HEALTH DEPARTMENT
MILWAUKEE ISOLATION HOSPITAL
MILWAUKEE HOSPITAL
MILWAUKEE CHILDREN'S HOSPITAL
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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 January 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 chmistry	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
Electives	3	Electives	3
	15		15

JUNIOR YEAR

Physics 1a or 31	5	Physics 1b or 31	5
Embryology	3-5	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		16

JUNIOR YEAR

	Credits		Credits
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

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	†Thesis or problem course	2-4
†Thesis or problem course	2-4		
	18-20		13-15

THIRD YEAR

First Semester		Second Semester	
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, otalaryngology	1
Surgery 301—Third-year surgery	6	Surgery 315—Orthopedics	1
Surgry 310—Opthalmology	1	Surgery 325—Urology	1
Surgery 330—Obstetrics and gynecology	1	Surgery 330—Obstetrics and gynecology	2
Neuropathology 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—Opthalmology	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

† A total of 4 credits required.

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, a course in embryology, and one year of organic chemistry.

MEDICAL COURSES

The two-year course has been abolished and all students will, in the future, be admitted for the complete four-year medical course. Combined with three years of premedical work outlined above, this course leads to the degree of Bachelor of Science, Medical Science, or Bachelor of Arts, at the conclusion of the first year in the Medical School. All students must obtain the bachelor's degree before advancement to the clinical years. Upon the successful completion of the two years of clinical instruction, the degree, Doctor of Medicine, is granted.

The number of students admitted to the Medical School will, in the future, be limited to 70 and a very high academic attainment will continue to be the first requirement for admission. Furthermore, advancement in the succeeding years will depend upon the completion of the required work with average grades of high fair or better.

In the present emergency permission for an acceleration of the medical course has been granted by the University Faculty and the Regents. This plan proposes a 36 week continuous course designed to complete the medical training in three calendar years rather than the usual four years. This program will begin July 1, 1942 and continue through the present emergency. The first two sessions will be devoted to the basic sciences and the last two to clinical medicine as in the past. The facilities of the State of Wisconsin General Hospital and affiliated hospitals and the preceptorships of physicians through the State will be utilized as in former years.

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, ⅓ II	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	⅔ II	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 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, neuropsychiatry, dermatology, and preventive medicine. Eight weeks are spent at the Wisconsin General 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 pages 301-304. 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 Tuberculosis 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 requirements:

(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 or a clinical report, 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 306-312.

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 625 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 to 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, *chairrman;* ASSOCIATE PROFESSORS GEIST, MORTENSEN, MOSSMAN; ASSISTANT PROFESSOR ROBBINS; INSTRUCTOR MALOOF.

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 so dissect is offered. Prerequisite: Zoology 3. Mrs. Eyster.

39. PHYSICAL EDUCATION ANATOMY. I; 4 cr. Lectures and laboratory work for students of physical education. Prerequisite: Zoology 1. 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. 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. 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. Dr. Mortensen, Dr. Curreri.

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. 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.

MEDICAL BACTERIOLOGY

PROFESSOR CLARK, *chairman;* ASSOCIATE PROFESSORS HOLFORD, SEASTONE.

1. PATHOGENIC MICROORGANISMS. I; 5 cr. Open only to students in course in medical technology. Dr. Clark and staff.

2. ELEMENTARY IMMUNOLOGY. II; 3 cr. Open only to students in course in medical technology. Dr. Holford.

4. BACTERIOLOGY AND HYGIENE. II; 3 cr. 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. Dr. Clark and staff.

104. IMMUNOLOGY. II; 3-4 cr. Prerequisite: Medical Bacteriology 102. Dr. Holford.

106. ADVANCED BACTERIOLOGY. I, *cr.; II, 3 cr. Filterable viruses. Dr. Clark.

108. BACTERIOLOGY SEMINARY. Yr; 1 cr. Staff.

200. GRADUATE RESEARCH. Yr; *cr. 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. Seastone, 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; ASSOCIATE PROFESSORS CARNS, KURTZ, MEYER, OATWAY, PUESTOW; ASSISTANT PROFESSORS GORDON, POHLE; CLINICAL PROFESSORS COLE, MOWRY; ASSOCIATE CLINICAL PROFESSORS BENTLEY, FOSTER, WESTON; ASSISTANT CLINICAL PROFESSOR SHAPIRO; INSTRUCTORS BINGHAM, H. P. DAVIS, DICKIE, KIMBLE; CLINICAL INSTRUCTORS AND ASSOCIATES BONER, KAY, SPRAGUE; SUPERVISOR OF EXTRA-MURAL TEACHING HUSTON; ASSISTANT SUPERVISOR OF EXTRA-MURAL TEACHING EVANS; LECTURER CHASE.

110. PHYSICAL DIAGNOSIS. I; 2 cr. Normal physical diagnosis. Prerequisites: Anatomy 110, 121, 126; Physiology 105. Dr. Carns.

111. MEDICAL DIAGNOSIS. II; 3 cr. Pathological clinical diagnosis. Prerequisites: One semester each of Pathology 101, Bacteriology 102, Medicine 110. 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. Dr. Evans, Dr. Middleton, and staff.

302. ORAL HYGIENE. II. Included in 301. Dr. Chase.

305. Therapeutics. I and II; 1 cr. Prerequisites: Medecine 102, 111. Dr. Evans and staff.

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, Byrnes, Thiessen, Thorngate.

102. Clinical Laboratory Diagnosis. II; 3 cr. Prerequisites: Bacteriology 102, Pathology 101; Physiological Chemistry 104. 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.

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 JURISPUDENCE 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.

310. Pediatrics. I; 1 cr. Prerequisites: Medicine 102, 111.

410. Fourth-Year Pediatrics. I or II; 2½ cr. Prerequisite: Medicine 310.

NEUROPSYCHIATRY

Professors Reese, *chairman*, Bleckwenn, Kant, Lorenz; Associate Professors Masten, Washburne; Assistant Professors Musser, Pessin; Clinical Associates Greiber, M. Green, M. Nesbit, Sauthoff.

112. Problems in Neuropsychiatry. *cr. Dr. Reese and staff.

200. Research. *cr.

312. Third-Year Neuropsychiatry. II; 2 cr. Prerequisites: One semester of Medicine 301 and Surgery 301. Dr. Reese and staff.

412. Fourth-Year Neuropsychiatry. I or II; 3 cr. Prerequisite: N.P. 312.

PATHOLOGY

Professor Bunting, *chairman*; Associate Professor McCarter.

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. I, 4 cr. Prerequisites: Anatomy 110, 126.

(b) Special Pathology. I, 2 cr.; II, 2 cr. Prerequisite: Satisfactory completion of general pathology. 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. Dr. Bunting.

301. Clinical Pathology Conferences. Yr. Given as part of Medicine 301. Dr. Bunting and members of medical and surgical staffs.

302. Neuropathology. I. Dr. McCarter.

Gross Pathology. II. For third-year medical students. Dr. Bunting and staff.

PHARMACOLOGY AND TOXICOLOGY

Professor Tatum, *chairman;* Assistant Professors Orth, 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. Dr. Tatum.

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.

222. Seminar in Physiology, Pharmacology, and Physiological Chemistry. Yr; 1 cr.

PHYSIOLOGICAL CHEMISTRY

Professor Bradley, *chairman;* Associate Professor Witzemann; Instructor Lehninger; Research Associates Cohen, 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. 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. Dr. Lehninger.

117. Advanced Physiological Chemistry and Research. II; *cr. Dr. Bradley, Dr. Witzemann.

120. Journal Club. Yr; 1 cr. Dr. Bradley.

200. Research.

222. Seminar in Physiology, Pharmacology, and Physiological Chemistry. Yr; 1 cr.

PHYSIOLOGY

PROFESSORS MEEK, *chairman,* EYSTER; ASSOCIATE PROFESSOR HERRIN; INSTRUCTORS BEYER, FRIES, LARSEN, MURPHY, STUTZMAN; RESEARCH ASSOCIATE HELLEBRANDT.

1. ELEMENTS OF HUMAN PHYSIOLOGY. I; 4 cr. Lectures, quizzes, demonstrations and laboratory giving a general knowledge of the structure and functions of the human body. Especially adapted to teachers. Prerequisite: A course in elementary science. Dr. Meek.

3. ANIMAL PHYSIOLOGY. II; 4 cr. Especially designed for students in pharmacy and agriculture, but open to others. Dr. Herrin and assistants.

4. PHYSIOLOGY. I; 4 cr. Open only to students in the course in nursing. Dr. Herrin.

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. 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. Miss Larsen.

116. PHYSIOLOGY OF EXERCISE. II; 3 cr. Prerequisite: Physiology 115. Miss Larsen.

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. Dr. Eyster, Dr. Meek, Dr. Hellebrandt, Dr. Herrin.

222. SEMINAR IN PHYSIOLOGY, PHARMACOLOGY, AND PHYSIOLOGICAL CHEMISTRY. Yr; 1 cr.

SURGICAL DIVISION

GENERAL SURGERY

PROFESSORS SCHMIDT, *chairman,* GALE; ASSOCIATE PROFESSORS ERICKSON, LEMMER; ASSISTANT PROFESSOR CURRERI.

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. Dr. Schmidt, Dr. Gale, Dr. Waters, and staff.

401. FOURTH-YEAR SURGERY. I, II; 3 cr. Prerequisites: Medicine 301, Surgery 301.

ANESTHESIA

PROFESSOR WATERS AND STAFF.

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 preoperative, operative and post-operative work.

OPHTHALMOLOGY

PROFESSOR DAVIS; ASSOCIATE PROFESSOR NEFF; CLINICAL ASSOCIATE DUEHR; CLINICAL ASSISTANT MACKENZIE, MINGS.

200. ADVANCED WORK AND RESEARCH. Yr; *cr. Dr. Davis and staff.

310. THIRD-YEAR OPHTHALMOLOGY. I; 1 cr. Prerequisites: Medicine 110, 111. 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. Dr. Nesbit and staff.

311. THIRD-YEAR OTOLARYNGOLOGY AND RHINOLOGY. I; 1 cr. Prerequisites: Medicine 110, 111. Dr. Nesbit.

411. FOURTH-YEAR OTOLARYNGOLOGY AND RHINOLOGY. I, II; 1 cr. Prerequisites: Surgery 310, 311.

ORTHOPEDIC SURGERY

PROFESSOR BURNS; ASSOCIATE PROFESSORS SCHUMM, 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 ANTONIUS, 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 PROFESSORS CAMPBELL, THORNTON; ASSISTANT CLINICAL PROFESSOR HARPER.

200. ADVANCED WORK AND RESEARCH. *cr.

330. OBSTETRICS AND GYNECOLOGY. I, 1 cr.; II, 2 cr. Prerequisites: Medicine 301, I; Surgery 301, I. 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 PROFESSORS HELLEBRANT, PAUL; INSTRUCTORS JACKSON, SCHLAAK.

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. Dr. Hellebrandt.

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 and Paul.

416. APPLIED PHYSICAL THERAPY. I, II; 1 cr. Prerequisite: Surgery 316. Dr. Hellebrandt.

CANCER RESEARCH

ASSISTANT PROFESSORS POTTER, RUSCH; RESEARCH FELLOW KLINE; RESEARCH ASSOCIATE MOHS; ORGANIC CHEMIST WASLEY; ASSOCIATE PROFESSOR BAUMANN.

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.

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 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 fourth 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, and continues through the university final examination period with no Christmas recess. 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.

For additional information concerning the course, inquiry should be made to Dr. W. J. Meek, Acting Dean of the Medical School.

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 an 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 one year.

(2) that interest be charged at the rate of 5% from the 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.

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 THIESSEN, 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.

101. URINE ANALYSIS. I; 5 cr. Chemical and microscopic examination of urine. 240 hours. 8-12 MTWTFS for 10 weeks. Dr. Birge.

* Limited to 15 students.

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 and Supervisor in Nursing
BECHTOLD, IDA, *R.N.*, Instructor and Supervisor in Nursing
CAREY, GLADYS KATHRYN, *B.S., R.N.*, Instructor and Supervisor in Nursing
CIRVES, MRS. CATHERINE PORTER, *B.A., R.N.*, Instructor and Supervisor in Nursing
CLIFFORD, MRS. EVA BEWICK, *R.N.*, Instructor and Supervisor in Nursing
COULTER, MRS. PEARL PARVIN, *M.A., R.N.*, Associate Professor of Public Health Nursing
CRUMP, MARGARET CLARA, *B.S., R.N.*, Instructor and Supervisor in Nursing
DUSIK, JOANNE FRANCES, *B.S., R.N.*, Instructor and Supervisor in Nursing
EMANUEL, MARGARET RUTH, *B.S., R.N.*,Assistant Professor of 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
LIVINGSTON, HELEN MARGARET, *B.S.*, Instructor 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 and Supervisor in Nursing
REITAN, MRS. EDITH PORTER, *B.S., R.N.*, Instructor and Supervisor in Nursing
SCHMIDT, CORNELIA EVELYN, *B.S., R.N.*, Instructor and Supervisor 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, ALEDA, *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
WIDENMYER, VIOLET, *B.S., R.N.*, Instructor and Supervisor in Nursing.
ZIEGEL, ERNA EMMA, *B.S., R.N.*, Instructor and Supervisor 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
CLARA B. RUE, *Associate 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.

PUBLIC HEALTH NURSING ADVISORY COMMITTEE

WALTER J. MEEK, Ph.D., *Chairman*

HELEN I. CLARK
PEARL P. COULTER
CHRISTINA C. MURRAY
HENRIETTA LANDAU, Public Health Nursing Consultant, United States Public Health Service
CLARA B. RUE
ANN SCHMICH
WILLIAM D. STOVALL, M.D.
CORNELIA VAN KOOY

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 General 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 and the Visiting Nurse Associations of Madison and Milwaukee.

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. 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 curricula 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 curricula 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 239. (2) Completion of the following additional courses: Home Economics 7, 6, 22, 133; English 30b, 32b, 33b, or 40b; Anatomy 120 or Physiology 4; Nursing 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. Either French, German or Spanish through 10b, or the passing of the appropriate intermediate examination. Another modern language may be substituted 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. 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 French, German, or Spanish through 10b, or the passing of the appropriate intermediate examination. Another modern language may be substituted 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 outine of work below)

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 and 4 or 5	14-15 Credits
Sociology 145 or 249	2-4 Credits
Education 119	3 Credits
Home Economics 1b, 117, or 107S	2 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 to 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
Psychology 144	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 Gale, Gonce, Harris, Middleton, Pohle, Sevringhaus, Stovall, Waters; Associate Professors Campbell, McIntosh, Masten, Washburne, Wear, Wirka; Assistant Professor Thornton; Instructors Bingham, Duehr, Nesbit.

1. Recognition and Treatment of General Medical and Surgical Diseases. I; 4 cr. Includes operating room technique and anaesthesia.

2. Health, Disease, and Therapy in Infancy and Childhood. II; 4 cr. Includes pediatrics, orthopedics, and physical therapy.

3. Nervous and Mental Health, Disease, and Therapy. I; 3 cr. Includes the principles of mental hygiene.

4. Health, Disease, and Therapy of the Eye, Ear, Nose, Mouth, Throat, Skin. II; 2 cr.

5. Communicable Diseases, Prevention and Therapy. I; 2 cr.

6. Obstetrics and Gynecology. I; 2 cr.

7. Medicine. II; 2 cr. Senior Medical Nursing.

NURSING

Professor Murray; Associate Professors Coulter, Fletcher; Assistant Professors Emanuel, Seborg; Instructors Albrecht, Bechtold, Carey, Cirves, Clifford, Crump, Dusik, Finkh, Paquin, Reitan, Schmidt, Stehle, A. Stolen, T. Stolen, Watson, Widenmyer, Ziegel.

1. Introduction to the Study of Nursing. II; 3 cr.

2. Nursing Arts in Relation to Medicine and Surgery. I; 3 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; 3 cr. Prerequisites: Nursing 1, 2, 3.

PUBLIC HEALTH NURSING

Associate Professor of Public Health Nursing Coulter; Professors Gonce, Harris, Stovall; Assistant Professor Pessin.

1a. Principles of Public Health Nursing. I, II; 3 cr. Problems of administration and organization in official and private agencies studied with emphasis on the role of the nurse as a family health teacher. Open only to graduate nurses. Mrs. Coulter.

1b. Special Services in Public Health Nursing. I, II; 3 cr. Methods and techniques employed by the public health nurse in a well balanced community health program. Prerequisite: Public Health Nursing 1a. Mrs. Coulter.

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. II; 3 cr. Factors in emotional adjustment. Problems concerned with individual and family relationships which public health nurses meet. Prerequisite: Psychology 1. Dr. Pessin.

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. Prerequisites: Psychology 1 and Public Health Nursing 1a.

20. Field Work. I, II; 8 cr. Supervised experience in selected urban and rural public health fields. Prerequisite: Public Health Nursing 1a or consent of instructor.

THERAPEUTICS

Professor Tatum; Pharmacist Parkin.

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., LL.M.*, Associate Professor of Law
FRANK TILDEN BOESEL, *Ph.D., LL.B.*, Lecturer in Law
WILLIAM WADE BOARDMAN, *LL.B.*, Lecturer in Law
JAMES WILLARD HURST, *B.A., LL.B.*, Associate 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.) Recent regulations permit students who enroll in any of the enlisted reserve plans to apply for admission at the end of the sophomore year. 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 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 full summer session in law (described hereinafter) normally counts for one-third of a year in residence, but, beginning in 1942 and expected to continue for the duration of the war, the summer session will consist of two parts of seven weeks each, both together representing the equivalent of a semester. Thus a student who attends two full summer sessions and two regular sessions may finish his course in two calendar years.

(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 consists 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 normally over a period of ten weeks, but, as stated above, beginning in 1942 and expected to continue for the duration of the war, the summer session will consist of two parts of seven weeks each. Students may attend and receive credit for either part or for both parts. A single part will count for half a semester, or the equivalent of one-fourth of a year of law study.

A maximum of seven credits may be taken during each part, the normal load being six credits. Two parts together will count for one semester, or the equivalent of half a year of law study.

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. They 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. Fees for the full course of fourteen weeks are $60. The fees for either one of the seven week sessions are $35, if both are not taken.

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.

During the war the Law School is offering a number of so-called "Defense Courses", especially designed for men going into the armed services or into defense industries or civilian government service.

COLLEGE OF ENGINEERING

F. Ellis Johnson, Dean

FACULTY

Altpeter, Roger James, *Ph.D.*, Assistant Professor of Chemical Engineering
Ayres, Edmund Dale, *B.A., M.S.*, Associate Professor of Electrical Engineering
Barker, George John, *B.S., E.M.*, Associate Professor of Mining and Metallurgy
Beckberger, LaVern Herbert, *B.S.*, Instructor in Chemical Engineering
Beckman, Robert Bader, *B.S.*, Instructor in Chemical Engineering
Benedict, Reginald Ralph, *M.S.*, Assistant Professor of Electrical Engineering
Bennett, Edward, *E.E.*, Professor of Electrical Engineering
Borchardt, Jack Adolph, *B.S., M.S.*, Instructor in Civil Engineering
Buroker, Donald Jasper, *B.S.*, Instructor in Machine Design
Colbert, Thomas Peter, *B.S.*, Instructor in Machine Design
Cottingham, Willard Sherwin, *M.S., C.E.*, Associate Professor of Structural 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 Mining and Metallurgy
Elliot, Benjamin George, *M.S., M.E.*, Professor of Mechanical Engineering
Fluck, Paul George, *B.S.*, Instructor in Mechanics
Fong, Tse-Ching, *M.S.*, Instructor in Chemical Engineering
de Fritsch, Hugo Charles, *B.A., M.S.*, Instructor of Electrical Engineering
Girardi, Daniel James, *Ph.D.*, Instructor in Mining and Metallurgy
Gordon, Donald Harvey, *M.S.*, Instructor in Chemical Engineering
Griffith, Fuller Orville, Jr., *B.S.*, Instructor in Drawing and Descriptive Geometry
Hansen, Einar Theodore, *M.S., M.E.*, Instructor in Mechanical Engineering
Hougen, Olaf Andreas, *Ch.E., Ph.D.*, 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
Johnson, F. Ellis, *B.A., E.E.*, Dean of the College of Engineering
Johnson, Royce Everett, *M.S.*, 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 and Sanitary Engineering
Kinne, William Spaulding, *B.S.*, Professor of Structural Engineering; Consulting Engineer, Physical Plant
Koehler, Glenn, *M.S.*, Associate 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, Alois John, *Ph.D.*, Assistant Professor of Chemical Engineering
Kubiak, Henry Joseph, *B.S.*, Instructor in Electrical Engineering, College of Engineering and Extension Division
Larson, Gustus Ludwig, *B.S., M.E., E.E.*, Professor of Mechanical Engineering; Consulting Engineering, 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
LIVERMORE, JOSEPH DOW, *B.S.*, Assistant Professor of Drawing and Descriptive Geometry
LOGAN, JOHN ALEXANDER, *D.Sc.*, Assistant Professor of Civil Engineering
MCCAFFERY, RICHARD STANISLAUS, *E.M.*, Emeritus Professor of Mining and Metallurgy
MCNAUL, JAMES WILBUR, *B.S.*, Associate 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
MEDLIN, JOHN WILSON, *B.S.*, Instructor in Mechanical 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.*, Professor of Sanitary Chemistry; Lecturer in Hydraulic and Sanitary Engineering; Chemist, State Laboratory of Hygiene
OESTERLE, JOSEPH FRANCIS, *Ph.D.*, 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
PUCKETT, HARVEY ROGERS, *M.S.*, Instructor in Mechanics
PUDDESTER, THOMAS, Instructor in Mechanical Engineering
PUFAHL, ALBERT EATON, *B.S.*, Instructor in Chemical Engineering
RADER, LLOYD FORREST, *Ph.D.*, Professor of Civil Engineering
RAGATZ, ROLAND ANDREW, *Ph.D.*, Professor of Chemical Engineering
REISER, CASTLE O., *B.S.*, Instructor in Chemical Engineering
ROARK, RAYMOND JEFFERSON, *M.S.*, Professor of Mechanics
ROSE, REED ALDEN, *M.S., M.E.*, Assistant Professor of Mechanical Engineering
SCHNEIDER, LEONARD GUSTAV, *M.S.*, Instructor in Mechanical Engineering
SCHUMANN, ROBERT NICHOLAS, Instructor in Mechanical Engineering
SHERWOOD, NOBLE PIERCE, *B.S., M.E.*, Instructor in Mechanical Engineering
SHIELS, KENNETH GRINNELL, *M.S.*, Associate 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
SPRINGER, EDWIN KENT, *B.S.*, Instructor in Mechanical Engineering
TAUXE, GEORGE JOHN, *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, *M.S.*, Instructor in Civil Engineering
WALTON, GRAHAM, *M.S.*, Instructor in Civil Engineering
WASHA, GEORGE WILLIAM, *Ph.D.*, Assistant Professor of Mechanics
WATSON, JAMES WEBSTER, *B.S.*, Professor of Electrical Engineering
WATSON, KENNETH MERLE, *Ph.D.*, Professor of Chemical Engineering
WATTS, OLIVER PATTERSON, *Ph.D., Sc.D.*, Emeritus Associate Professor of Chemical Engineering

WENDT, KURT FRANK, *B.S.*, Associate Professor of Mechanics
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

DEGREES IN THE COLLEGE OF ENGINEERING

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 346.)

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 Department 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 impor-

tant 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.

THERMAL PROCESSES LABORATORY—For the study of the principles of combustion, heat transfer, thermal conductivity, humidification and dehumidification.

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—Well equipped with instruments and equipment for testing unit heaters, vacuum pumps, air leakage and air distribution. A complete air conditioning system is available for testing and research.

AUTOMOTIVE LABORATORY—Equipped with electric and hydraulic dynamometers for the testing of high-speed automative-type engines.

BOILER LABORATORY—A variety of boilers are available for test with hand firing, stokers, oil and gas burners.

CALIBRATION LABORATORY—Equipped to test indicators and gages up to 25,000 psi. Other equipment available for checking temperature measuring devices and air velocity meters.

ENGINE LABORATORY—Contains a wide variety of power equipment including several steam engines, a turbine, an ammonia refrigerating machine, a two-stage air compressor and a stationary-type diesel engine.

MACHINE LABORATORY—Fully equipped 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—Well equipped for determining the properties of oils and for research in lubricating problems.

WELDING LABORATORY—Equipped for electric arc and flame 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 photoelastic apparatus, refrigerator, and room with humidity and temperature control. The largest testing machine has a capacity of 600,000 lbs.

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 LABORATORIES—A laboratory for the testing and control of molding sands—melting equipment including cupreous, electric arc furnace, and gas furnaces, core ovens, molding equipment and apparatus for the 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 20-27 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, band, military science 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 346). 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, military science, 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, military science, 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 students in engineering are required to take two years of military science and physical education. Students completing this basic course in military science may elect to take the advanced course for four more semesters in which case they are granted 8 additional credits toward graduation.

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.

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 typewritten 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. 37—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.
or			
M. E. 109—Internal combustion engines	3 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. 4a—General chemistry	5	Chem. 4b—General chemistry	5
Engl. 1a—Freshman composition	3	Engl. 1b—Freshman composition	3
Freshman forum	1	Freshman forum	1
Freshman lectures	0	Freshman lectures	0
Military science	0	Military science	0
Physical education	0	Physical education	0
	17		17

SOPHOMORE YEAR

Math. 102a—Calculus	4	Math. 102b—Calculus	4
Physics 51—General physics	5	Physics 52—General physics	5
Chem. 120a—Organic theory	2	Chem. 120b—Organic theory	2
Chem. 121a—Organic laboratory	2	Chem. 121b—Organic laboratory	1
Ch. E. 20—Industrial chemistry	3	Chem. 14—Quant. analysis	5
Free electives	2	Ch. E. 18—Fundamentals	2
Military science	0	Military science	0
Physical education	0	Physical education	0
	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. 53—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—Ch. E. measurements	3	Ch. E. 111—Manufacturing operations	3
		Ch. E. 116—Thermal processes theory	3
		Ch. E. 116—Thermal processes lab.	1
		Junior inspection trip	0
	18		19

SUMMER SESSION

Ch. E. 114—Chem. manufacture (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	3	Free electives	4
Senior conference	0	Senior conference	0
		Senior inspection trip	0
	19		19

* This curriculum is subject to change without notice.

CIVIL ENGINEERING 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
Military science	0	Military science	0
Physical education	0	Physical education	0
	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	Military science	0
Military science	0	Physical education	0
Physical education	0		
	17		17

Six weeks of summer camp, including two weeks of Railway Survey and four weeks of Topographic 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—Junior reports	1
Geol. 9—Engineering geology	3	C. E. 52—Structural analysis	4
C. E. 1a—Junior reports	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—Senior reports	1	C. E. 2b—Senior reports	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—Bituminous materials testing	3
C. E. 135—Soils and aggregates testing	3	C. E. 136—Highway administration	2
C. E. 141—City planning	2	C. E. 141—(repeated)	2
C. E. 144—Municipal engr. practice	2	C. E. 145—Traffic control	2
Econ. 168—Highway transportation	3	C. E. 162—Highway bridges	2
		Mech. 110—Soil machines	2

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 346 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

First Semester		Second Semester	
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. 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
Military science	0	Military science	0
Physical education	0	Physical education	0
	17		17

SOPHOMORE YEAR

Math. 102a—Calculus	4	Math. 102b—Calculus	4
Physics 53—Mechanics	3	Physics 54—Heat, wave motion and sound	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
Military science	0	Non-professional elective	3
Physical education	0	Military science	0
		Physical education	0
	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

* This curriculum is subject to change without notice.

SENIOR YEAR

First Semester	Credits	Second Semester	Credits
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

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:

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. 153—Electronics	3	E. E. 127—Central stations	3
E. E. 154—Elements of radio communication	3	E. E. 156—Elements of wire communication.	3
E. E. 155—Thermionic vacuum tube circuits	3	E. E. 157—Radio circuit analysis and design	3
E. E. 180—Advanced independent studies...3-5		E. E. 158—Ultra high frequency techniques	5
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
Military science	0	Military science	0
Physical education	0	Physical education	0
	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—General machine practice	2	*Drawing 3—Descriptive geometry	3
* M. & M. 33—Foundry	1	Mechanics 1, 2—Statics, dynamics	5
M. E. 41—Mechanism	4	M. E. 42—Machine design practice.....	1
Military science	0	Military science	0
Physical education	0	Physical education	0
	16		18

† This curriculum is subject to change without notice.

* Can be deferred.

JUNIOR YEAR

First Semester	Credits	Second Semester	Credits
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. 52 or 54—Machine testing or welding design	2
**Electives	3	M. E. 62—Heat-power equipment	4
		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 1a	4		
**Electives	4		
Senior conference	0		
	19		19

INSPECTION TRIPS FOR MECHANICAL ENGINEERS

Junior Trip, Second Semester. Prerequiste: Junior standing.
Senior Trip, First Semester. Prerequisite: Senior standing.

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
Military science	0	Military science	0
Physical education	0	Physical education	0
	18		18

† These curricula are subject to change without notice.
* Can be deferred.
** General electives must include at least two credits in advanced Hydraulic Engineering and two credits from Mechanical Engineering courses numbered 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.

SOPHOMORE YEAR

First Semester	Credits	Second Semester	Credits
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
Military science	0	Military science	0
Physical education	0	Physical education	0
	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, 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. 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 electives 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. 104—Mineral valuation	3
M.&M. 107—Mineral dressing	5	M.&M. 105—Mine engineering	3
M.&M. 124—Metallurgy of iron and steel	3	M.&M. 210—Adv. ore dressing	3
E.E. 8—Electrical machinery	3	E.E. 9—Electrical machinery	3
C.E. 60a—Structural design	2	C.E. 60b—Structural design	2
Senior conference	0	Senior conference	0
	16		17

METALLURGY OPTION

JUNIOR YEAR

Second Semester	Credits	Second Semester	Credits
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. 104—Mineral valuation	3
M.&M. 135—Metallurgical calculations	3	M.&M. 131—Foundry metallurgy	3
M.&M. 140—Heat treatment of soft and medium steels	3	M.&M. 147—Alloy structures	3
E.E. 8—Electrical machinery	3	M.&M. 210—Adv. ore dressing	3
Senior conference	0	E.E. 9—Electrical machinery	3
		M.E. 34—Adv. foundry practice	2
		Senior conference	0
	16		17

MINING GEOLOGY OPTION

JUNIOR YEAR

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—Mining 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
Geol. 108—Petrology	5	M.&M. 210—Adv. ore dressing	3
Geol. 117—Pre-cambrian geology	2	Geol. 108—Petrology	5
Geology from group above and electives	4	Geology from group above and electives	6
Senior conference	0	Senior conference	0
	16		17

Note:—Preferably at the end of the junior year, all students in the department are required to take a six-weeks' trip, inspecting operations in important mining and metallurgical centers in this country.

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, KOWALKE, RAGATZ, *chairman*, WATSON; ASSISTANT PROFESSORS ALTPETER, KROMBHOLZ; INSTRUCTORS BECKBERGER, BECKMAN, FONG, NEILL, PUFAHL, REISER.

8. METALLOGRAPHY FOR MECHANICAL ENGINEERS. II; 2 cr. The microstructure of steels and metals used in machine construction. Not open to chemical engineers. Prerequisite: Junior standing. Mr. Ragatz, Mr. Reiser.

12. TECHNICAL ANALYSIS. I, II; 2 cr. Examination of fuels, gases, and water. Prerequisite: Chemistry 11 or 14. Mr. Neill, Mr. Fong, Mr. Reiser.

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, Mr. Reiser.

18. FUNDAMENTALS OF CHEMICAL ENGINEERING. I, II; 2 cr. The applications of the laws of gases, density, solubility, and chemical combination. Prerequisite: Chem. 14 or concurrent registration in Math. 52. Mr. Kowalke, Mr. Neill.

20. INDUSTRIAL CHEMISTRY. I; 3 cr. The chemical, economic, and engineering aspects of selected industries. Prerequisites: Chem. 4b and Chem. 120a or concurrent registration. Mr. Kowalke, 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. Mr. Krombholz, Mr. Neill.

111. MANUFACTURING OPERATIONS. Yr; 3 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. Neill.

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 of chemical engineers as summer work; elective for other students. 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. Krombholz.

116. THERMAL PROCESSES. II; 4 cr. Application of laws and principles to the solution of thermal problems in the chemical industries. Prerequisites: Ch.E. 18. Mr. Ragatz, Mr. Altpeter.

117. CHEMICAL ENGINEERING MEASUREMENTS. I; 3 cr. Measurement and control of temperature, liquid composition, fluid pressure, etc. Prerequisite: Physics 52. 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 photomicrography of metals and alloys, theories of solidification and constitution and the effects of heat treatment. Prerequisite: Junior standing. Mr. Ragatz, Mr. Fong.

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. Altpeter.

122. SPECIAL PROBLEMS. II; 3 or 4 cr. Assigned problems involving opportunity for extended independent effort. Prerequisites: Ch.E. 101, 111, 119. Staff.

124. INDUSTRIAL MICROSCOPY. I; 3 cr. Microscopic and microchemical examination of selected industrial products. Prerequisites: Physics 52 and Chem. 120. 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. 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. Altpeter.

131. INDUSTRIAL REACTION RATES. II; 3 cr. The application of chemical kinetics to the design of equipment used in the chemical industries. Prerequisites: Chem. 130, Ch.E. 118. Mr. Hougen.

180. ADVANCED INDEPENDENT STUDIES. Yr; 1-3 cr. Readings and conferences on assigned topics. Staff.

200. RESEARCH. *cr. Assigned experimental and library investigation with conferences and reports. Mr. Altpeter, Mr. Hougen, Mr. Kowalke, Mr. Krombholz, Mr. Ragatz.

231. SEMINAR. Yr; 1 cr. A study of various problems in chemical engineering. Mr. Kowalke.

232. CORROSION. II; 2 cr. Reading course. Mr. Krumbholz.

233. ADVANCED UNIT OPERATIONS. Yr; 2 cr. An advanced treatment of the operations of drying, distillation, absorption, evaporation, filtration and extraction. Prerequisites: Chem. 130, Ch.E. 111. Mr. Kowalke.

280. ADVANCED INDEPENDENT STUDY. I, II; *cr. Staff.

CIVIL ENGINEERING

PROFESSORS KINNE, RADER, VAN HAGAN—*chairman*, WOODBURN; ASSOCIATE PROFESSORS COTTINGHAM, KESSLER, OWEN; ASSISTANT PROFESSOR LENZ; INSTRUCTORS BORCHARDT, DODGE, VOELKER, WAGNER, WALTON; LECTURERS NICHOLS, ZAPATA.

GENERAL

1a. JUNIOR REPORTS. I; 1 cr. Practice in preparing technical papers and reports. Prerequisite: English 1b. Mr. Van Hagan.

1b. JUNIOR REPORTS. II; 1 cr. Follows course 1a.

2a. Senior Reports. I; 1 cr. Follows course 1b.

2b. Senior Reports. II; 1 cr. Follows course 2a.

101. Contracts and Specifications. II; 2 cr. Engineering relations,—legal, contractual, and personal. Preparation of contracts, specifications, and other engineering papers. Prerequisite: Senior standing. Mr. Woodburn and lecturers.

102. Estimates. II; 2 cr. Practice in scaling quantities and preparing estimates of cost. Prerequisite: Junior standing. Mr. Van Hagan.

103. Economic Selection. I; 2 cr. The application of economic principles to engineering problems. Prerequisite: Junior standing. Mr. Van Hagan.

SURVEYING

11. Elementary Surveying. I; 2 cr. Theory and practice in taping and leveling. Mr. Owen.

12. Elementary Surveying. II; 2 cr. Adjustment and use of the level, compass, and transit. Mr. Owen.

14. Land Surveying. I; 3 cr. 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. Mr. Owen.

114. Advanced Surveying. II; 3 cr. Field and office work in mining, topographic and hydrographic surveying, steam gauging, and field astronomy. Prerequisite: C.E. 13. Mr. Owen.

116. Summer Survey. 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. Theory and practice in surveying for non-engineering students. Use of tape, level, transit, plane table, and compass. Mr. Owen.

118. Short Course in Surveying. I, II; 3 cr. Theory and practice in surveying for electrical and mechanical engineering students. Use of tape, level, and transit. Prerequisite: Trigonometry. Mr. Owen.

TRANSPORTATION

21. Engineering Curves. I, II; 2 cr. 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. 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. 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. Principles of highway design; subgrade soils; drainage; construction and maintenance of pavements and road surfaces; economics; finance. Prerequisites: C.E. 21 and Mech. 3. Mr. Worsencroft.

133. Advanced Highway Design. I; 3 cr. Problems of an advanced nature in the design of the modern highway; design of rigid and flexible pavements; culverts. Prerequisite: C.E. 132. Mr. Rader.

134. Bituminous Materials Testing. II; 3 cr. The testing of bituminous road materials. Prerequisite: C.E. 132. Mr. Rader, Mr. Zapata.

135. Soils and Aggregates Testing. I; 3 cr. Testing of soils and aggregates for highway purposes; soil classification; subgrade drainage; frost phenomena; soil stabilization; applications to road construction. Prerequisite: C.E. 132. Mr. Rader, Mr. Larson, Mr. Guenther.

136. HIGHWAY ADMINISTRATION. II; 2 cr. Methods of administration, including historical development, organization of highway departments, highway transportation surveys, planning, finance, administration of construction projects, and control of maintenance operations. Prerequisite: C.E. 132. Mr. Rader.

139. AIRPORTS. I; 2 cr. Physical requirements of airport sites; design and construction of hangars, landing fields, and runways; airport administration; law of airports. Prerequisite: Mech. 3. Mr. Rader.

CITY PLANNING*

141. CITY PLANNING. I, II; 2 cr. History of city planning; classes and use of streets; land subdivision; transit and transportation systems; parks and playgrounds; public buildings; housing; zoning. Mr. Voelker.

144. MUNICIPAL ENGINEERING PRACTICE. I; 2 cr. Width and arrangement of streets; crowns and intersections; sidewalks; curb and gutter; street surface details; parkways; parks; trees and shrubs. Prerequisite: C.E. 13. Mr. Rader.

145. TRAFFIC CONTROL. II; 2 cr. Causes of accidents and congestion; traffic surveys; physical facilities for controlling highway traffic; signs; signals; parking; traffic laws; administration. Prerequisite: Junior standing. Mr. Rader.

STRUCTURAL ENGINEERING

52. STRUCTURAL ANALYSIS. II; 4 cr. Simple bridge stresses. Four recitations. Prerequisite: Mechanics 1. Mr. Kinne, Mr. Cottingham.

53. STRUCTURAL DESIGN. I; 3 cr. 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. 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. A short course in the designing of roofs and buildings. Designed for students in mechanical, electrical, and mining engineering. Prerequisites: Mechanics 1, 3. Given when demand warrants. Mr. Cottingham.

60b. STRUCTURAL DESIGN. II; 2 cr. 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. Principles of reinforced concrete construction; analysis and problems in design. Prerequisites: Mechanics 1, 3. Mr. Cottingham.

156. REINFORCED CONCRETE. I; 2 cr. Design and analysis of reinforced concrete arches. Prerequisites: Mechanics 1, 3. Mr. Kinne.

157. STRUCTURAL ANALYSIS. I; 3 cr. Statically indeterminate structures. Analysis of swing, cantilever, arch, and suspension bridges. Prerequisite: C.E. 52. Mr. Kinne.

158. STRUCTURAL ANALYSIS. II; 2 cr. Problems in statically indeterminate structures, rigid frame analysis, and secondary stresses. Prerequisite: C.E. 52. Mr. Kinne.

161. REINFORCED CONCRETE. II; 2 cr. Analysis and problems in building design. A continuation of Struct. Engr. 155, which is prerequisite. Mr. Cottingham.

162. HIGHWAY BRIDGES AND CULVERTS. II; 2 cr. 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. 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. The principles of foundation design and construction. Prerequisite: C.E. 163 or concurrent registration. Mr. Van Hagan.

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* Students desiring work in planning and planting of public grounds, parks, and home grounds, see courses in Horticulture, College of Agriculture.

HYDRAULIC ENGINEERING

71. HYDRAULICS. I, II; 3 cr. 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. Mr. Woodburn, Mr. Kessler, Mr. Lenz, Mr. Walton, Mr. Dodge.

72. HYDRAULICS. I, II; 4 cr. Similar to course 1, but having additional laboratory work. Required of junior civil engineering students. Prerequisites: Mechanics 1, 2. Mr. Woodburn, Mr. Kessler, Mr. Lentz, Mr. Walton, Mr. Dodge.

173. ADVANCED HYDRAULICS. I; 2 cr. 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, Mr. Dodge.

174. RIVER AND IRRIGATION HYDRAULICS. II; 2 cr. 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. The theory of hydraulic motors, pumps, etc., and their economic selection and installation. Prerequisite: C.E. 71 or 72. Mr. Lenz.

176. TESTING OF HYDRAULIC MACHINES. I, II; 2 cr. 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. Mr. Lenz, Mr. Dodge.

181. HYDROLOGY. I; 2 cr. Water in its physical, geological, and meteorological relations as applied to water power, water supply, irrigation, drainage, soil erosion, and sanitary engineering. Mr. Lenz.

182. HYDROLOGICAL INVESTIGATIONS. I; 2 cr. 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. Design of hydraulic features of water-power plant based on hydrological investigations of C.E. 182. Prerequisite: C.E. 71 or 72. Mr. Lenz.

184. WATER POWER ENGINEERING. I; 3 cr. The theory, investigation and development of water power. Prerequisite: C.E. 71 or 72. Mr. Lenz.

SANITARY ENGINEERING

191. SEWERAGE. II; 2 cr. The principles of design and maintenance of sanitary and storm sewer systems. Prerequisite: C.E. 71 or 72, or concurrent registration. Mr. Kessler, Mr. Walton, Mr. Dodge, Mr. Borchardt.

192. SEWAGE TREATMENT AND MUNICIPAL WASTE DISPOSAL, I, II; 1 or 3 cr. Development of disposal works and methods of treatment. If three credits are elected the student will design special features of various treatment plants. Prerequisite: C.E. 191. Mr. Kessler.

193. WATER AND SEWAGE ANALYSIS. I; 3 cr. 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. Prerequisites: Chem. 2a and 2b, or equivalent. Mr. Nichols, Mr. Walton, Mr. Borchardt.

194. SANITARY ENGINEERING SEMINAR. I, II; 1 cr. Review of literature on sanitary engineering, sewage, and trade waste problems. Mr. Woodburn, Mr. Kessler.

195. WATER SUPPLY. I; 3 cr. Theory, development, and improvement of water supplies for domestic manufacturing, and fire service. Prerequisites: C.E. 71 or 72, 181. Mr. Woodburn, Mr. Kessler, Mr. Dodge.

ADVANCED INDEPENDENT STUDY

180, 280. See page 345.

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 345. 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;* ASSOCIATE PROFESSOR SHIELS; ASSISTANT PROFESSORS DOKE, LIVERMORE; INSTRUCTORS GRIFFITH, 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.* 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. 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. Mr. Doke.

8. ADVANCED FREEHAND LETTERING. I, II; 2 cr. Continuation of Course 7, which is prerequisite. Mr. Doke.

9. ADVANCED FREEHAND LETTERING. I, II; 1 or 2 cr. Continuation of Course 8 which is prerequisite. Mr. Doke.

ELECTRICAL ENGINEERING

PROFESSORS BENNETT, PRICE, WATSON, *chairman;* ASSOCIATE PROFESSORS AYRES, KOEHLER, TRACY; ASSISTANT PROFESSORS BENEDICT, JOHNSON, KELSO, LARSON; INSTRUCTORS DE FRITSCH, 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. Kubiak, Mr. Larson.

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. Benedict, Mr. Watson.

3. ALTERNATING CURRENT THEORY. I, II; 4 cr. Single phase and polyphase circuits. With lab. work. Prerequisite: E.E. 2. Mr. Price, Mr. Tracy, Mr. Watson.

4. ALTERNATING CURRENT MACHINERY. I, II; 4 cr. Synchronous machinery, transformers, induction motors. A continuation of E.E. 3. Mr. Price, Mr. Tracy, Mr. Waston.

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. With lab. work. Primarily for mining and chemical engineers. Prerequisite: Physics 52. Mr. de Fritsch, Mr. Larson.

9. Electrical Machinery. II; 3 cr. Alternating current theory and machinery. With lab. work. Primarily for mining and chemical engineers. Prerequisite: E.E. 8. Mr. de Fritsch, Mr. Larson.

10. Direct Current Machinery. II; 3 cr. With lab. work. Primarily for civil engineers. Mr. Larson.

25. Engineering Papers. I, II; 2 cr. Preparation and presentation of technical papers. Open to engineering seniors.

101. Economics of Engineering. I; 3 cr. The application of the fundamental principles of economics to engineering problems, rate structures, etc. Prerequisite: Junior standing.

102. Economics of Engineering. II; 3 cr. 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. 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. Mr. Benedict.

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. With lab. work. Prerequisite: E.E. 3. Mr. Benedict, Mr. Bennett.

120. Insulation and High Tension Testing. II; 3 cr. Dielectric theory. Properties and laboratory tests of insulators and insulating materials. Prerequisite: E.E. 3. Mr. Benedict, Mr. Bennett.

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. 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. 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.

153. Electronics. I; 3 cr. Theory and applications of high vacuum and gaseous tubes, photo cells, and other electronic devices. With lab. work. Prerequisite: E.E. 3 or junior standing in physics. Mr. Koehler.

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. 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. 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. 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.

158. Ultra-High-Frequency Technique. II; 3 cr. An analytical and experimental study of high frequency amplifiers, oscillators, transmission lines, wave guides, radiation, and antennas. With laboratory work. Prerequisite: E.E. 157. Mr. Koehler.

180. Advanced Independent Study. I, II; *cr. See page 345. Staff.

213. Electric Machine Theory. I; 3 cr. Analytical treatment of the behavior of three-phase induction motors and transformers under unbalanced conditions; sub-synchronous 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. 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. Mr. Benedict, Mr. Bennett.

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 345. 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.

52. Dynamo Laboratory. I or II; 2 cr. Tests of direct current dynamos and appliances. To accompany E.E. 2.

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.

56. Direct Current Laboratory. II; 2 cr. For mechanical engineers. To accompany E.E. 6.

57. Alternating Current Laboratory. I; 2 cr. Primarily for mechanical engineers. Prerequisite: E.E. 7.

60. Direct Current Laboratory. II; 1 cr. To accompany E.E. 10.

MECHANICAL ENGINEERING

PROFESSORS ELLIOTT, HYLAND, LARSON, *chairman*, L. A. WILSON; ASSOCIATE PROFESSORS MCNAUL, NELSON; ASSISTANT PROFESSOR ROSE; INSTRUCTORS BUROKER, COLBERT, HANSEN, MEDLIN, PEOT, PETERS, PUDDESTER, SCHNEIDER, SCHUMANN, SHERWOOD, SPRINGER.

METAL PROCESSING

25. GENERAL INDUSTRIAL METHODS IN METAL PROCESSING. I, II; 2 cr. A study of machine tools and standard methods of production. Fundamentals of lathe work, milling and shaping. Standard cutting materials, methods, and their application. Mr. Puddester.

27. APPLIED PRINCIPLES OF PRODUCTION. I, II; 2 cr. Application of jigs, fixtures and dies, broaching, grinding, and lapping to manufacturing. Application of time-study methods. Mr. Puddester.

32. GENERAL INDUSTRIAL MACHINE PRACTICE. II; 2 cr. 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. For electrical engineers. Mr. Puddester.

37. WELDING. I, II; 2 cr. Lectures, demonstrations, and practice in the fundamentals of gas, electric arc, thermit, and resistance welding. Hard surfacing, metal spraying, methods of testing, stress relief. Mr. Peters, Mr. Schumann.

MACHINE DESIGN

41. MECHANISM. I; 4 cr. The relative motions of machine parts including linkages, cams, toothed gears, beltings, chains and ratchets. Prerequisites: One year of drawing. Mr. McNaul, Mr. Colbert, Mr. Springer.

42. DESIGN PRACTICE. II; 1 cr. 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. Mr. Colbert, Mr. Springer.

43. MACHINE ELEMENTS. I; 4 cr. 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. A continuation of M.E. 43 applied to the design of complete machines. Prerequisite: M.E. 43. Mr. McNaul, Mr. Buroker, Mr. Springer.

45. MACHINE ELEMENTS. I, II; 3 cr. A study of the mathematical and empirical methods for the design of machine parts, with parallel drafting. For electrical and chemical engineers. Prerequisites: Mechanics 1, 3. Mr. Colbert.

52. MACHINE TESTING. II; 2 cr. Experimental determinations of the strength of machine elements and the efficiency of machines. Prerequisite: M.E. 43. Mr. Buroker, Mr. Colbert, Mr. Springer.

54. DESIGN OF WELDED MACHINES AND MACHINE PARTS. II; 2 cr. The application of welding to design problems; analysis of stress, procedure, and cost factors; problems of expansion and contraction; methods of weld testing. Prerequisite: Junior standing. Mr. Buroker.

HEAT POWER

61. THERMODYNAMICS. I; 4 cr. A study of the laws of heat asd mechanical energy, followed by a study of vapors, theoretical steam cycles, and refrigeration. For mechanical engineers. Prerequisites: Physics 51; Mathematics 102b or concurrent registration. Mr. Elliott, Mr. L. A. Wilson.

62. HEAT-POWER ENGINEERING. II; 4 cr. A study of fuels and combustion, stokers and boilers, engines and turbines, power plant auxiliaries, and internal combustion engines. Prerequisite: M.E. 61. Mr. Elliott, Mr. L. A. Wilson.

63. THERMODYNAMICS. I; 3 cr. This course is similar to M.E. 61 except less time is spent on problems. For electrical engineers. Prerequisites: Physics 54; Mathematics 102b or concurrent registration. Mr. Schneider, Mr. Sherwood.

64. HEAT-POWER ENGINEERING. II; 3 cr. Similar to M.E. 62 but abbreviated. For electrical engineers. Prerequisite: M.E. 63. Mr. Hansen, Mr. Schneider, Mr. Sherwood.

65. THERMODYNAMICS. I; 3 cr. Similar to M.E. 63 except that it is specially arranged for chemical engineers. Prerequisites: Physics 51; Mathematics 102b or concurrent registration. Mr. Nelson, Mr. Sherwood.

66. HEAT-POWER ENGINEERING. II; 2 cr. A study of stokers, boilers, steam engines, steam turbines, and internal combustion engines. For chemical engineers. Prerequisite: M.E. 65. Mr. Nelson.

67. THERMODYNAMICS AND HEAT-POWER ENGINEERING. I; 2 cr. An abbreviated course in 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, Mathematics 102b or concurrent registration; registration in M.E. 77. Mr. Hansen.

69. AIRCRAFT POWER PLANT PRINCIPLES. II; 2 or 3 cr. (Third credit given for preparation of a paper.) A general study of the functional purposes of the various parts of the modern aircraft power plant which includes the propeller mechanism and all accessories. Prerequisite: Junior engineering standing. Mr. Schneider.

72. ELEMENTARY TESTING OF HEAT ENGINES. II; 2 cr. Calibration of instruments, fuel and gas analysis, valve setting, and the determination of the efficiencies and characteristics of simple heat engines for mechanical engineers. Prerequisite: Registration in M.E. 62. Mr. Sherwood, Mr. Schneider and assistants.

73. ADVANCED TESTING OF HEAT ENGINES. I; 2 cr. Continuation of M.E. 72, covering more complex types of heat engines, including refrigeration machinery, boilers and power plants. Prerequisite: M.E. 72. Mr. Schneider, Mr. Sherwood and assistants.

74. ELEMENTARY TESTING. II; 2 cr. 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. Mr. Schneider and assistants.

75. ADVANCED TESTING OF HEAT ENGINES. I; 1 cr. Continuation of M.E. 74, covering fuel and gas analysis, and more complex types of heat engines including air compressors, refrigeration machinery, boiler plant, and Diesel engine tests. Mr. Nelson, Mr. Sherwood.

77. HEAT ENGINE TESTING. I, II; 2 cr. 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. Mr. Hansen, Mr. Nelson, Mr. Sherwood.

ADVANCED COURSES

100. SENIOR THESIS. I, II; 1-5 cr. Special project work in mechanical engineering. Prerequisite: Senior standing. Staff.

105. MANUFACTURING AND PRODUCTION METHODS. I; 2 cr. Factory management; production scheduling and planning; dispatching and manufacturing methods. A general survey of materials, special tools and fundamental processes of manufacturing. Prerequisite: Senior standing. Mr. McNaul.

106. POWER PLANT ECONOMICS AND DESIGN. II; 3 cr. 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. Calculations used in practice for engines, boilers, condensers, cooling towers, including fundamental psychrometric calculations. Prerequisite: M.E. 62 or 64. Mr. Elliott, Mr. Larson.

108. Heating and Ventilating. I, II; 3 cr. The principles and practice 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. The theory and design of gas, gasoline, and fuel oil engines with emphasis on the high-speed type; also such details as carburetion, fuel injection, and ignition. Prerequisite: M.E. 62, 64, 66, or 67. Mr. Schneider.

110. Air Conditioning. II; 2 cr. 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. Application of thermodynamic principles to refrigeration systems. Simple, compound, and multiple effect compression. Absorption system. Cooling and dehumidification of air. Water vapor refrigerating system. Prerequisite: M.E. 62, 64, 66, or 67. Mr. L. A. Wilson.

119. Airplane Engines. II; 2 cr. Fundamental principles of aircraft engine construction, operation, and maintenance. Study of modern engines, carburetors, ignition systems, starters, and superchargers. Prerequisite: M.E. 62, 64, 66 or 67. Mr. L. A. Wilson.

124. Advanced Heat-Power Testing. II; 1 cr. 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. Mr. Hansen.

128. Heating and Ventilating Laboratory. II; 2 cr. Calibration of instruments, determination of efficiencies of ventilating systems, air conditioners, and unit heaters. Prerequisite: M.E. 72, 74 or 77. Mr. Nelson.

130. Airplane Engine Testing. II; 2 cr. Prerequisite: M.E. 72, 74 or 77. Staff.

151, 152, 153, and 154. Advanced Mechanical Engineering Projects. I, II; 1-3 cr. each. Laboratory projects where the student works on his own initiative under staff supervision. Prerequisite: Approval of M.E. Course Committee. Staff.

180. Advanced Independent Study. I, II; *cr. See page 345. Staff.

200. Graduate Research. I, II; 3 to 5 cr. Major research projects for thesis credit toward advanced degrees. Prerequisite: Graduate standing in engineering. Staff.

280. Advanced Independent Study. I, II; *cr. (S. & G. 200.) See page 345. Staff.

MECHANICS

Professors Kommers, Roark, Withey, *chairman;* Associate Professor Wendt; Assistant Professor Washa; Instructors Puckett, Tauxe.

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; 3 cr. Prerequisites: Mechanics 1; Mathematics 102b, or concurrent registration. Last nine weeks of each semester.

3. Mechanics of Materials. I, II; 5 cr. Prerequisites: Mechanics 1; Mathematics 102b, or concurrent registration.

4. Statics and Dynamics. I; 4 cr. Prerequisites: Physics 51; Mathematics 102b, or concurrent registration. For chemical and mining engineers.

5. Mechanics of Materials. II; 3 cr. Prerequisites: Mechanics 1 or 4; Mathematics 10b, 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.

52. MATERIALS OF CONSTRUCTION. II; 2 cr. Continuation of 51.

53. MATERIALS OF CONSTRUCTION. I, II; 2 cr. Prerequisite: Mechanics 3 or 5 or concurrent registration. For chemical, electrical, mechanical, and mining engineers.

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. 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. 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. Roark.

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. Roark.

180. ADVANCED INDEPENDENT STUDY. I, II; *cr. See page 345. Staff.

280. ADVANCED INDEPENDENT STUDY. I, II; *cr. See page 345. Staff.

MINING AND METALLURGY

PROFESSORS OESTERLE, *chairman,* SHOREY; ASSOCIATE PROFESSORS DORRANS, BARKER; INSTRUCTOR GIRARDI.

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. Mr. Shorey.

33. FOUNDRY. I, II; 1 cr. The principles and practice governing the production of metal castings. Sand control, cupola operation, non-ferrous casting, core making, molding practice, casting cleaning, and hazards. Mr. Oesterle and assistants.

34. ADVANCED FOUNDRY PRACTICE. II; 2 cr. 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. Mr. Oesterle.

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. 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. Mr. Shorey.

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. 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. Mr. Barker.

**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. 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. Oesterle.

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. Prerequisite: Physics 52. 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. 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. Mr. Girardi.

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 absorption. Lectures, quiz. Prerequisites: Chem. 1b, Physics 52. Mr. Girardi.

131. FOUNDRY METALLURGY. II; 3 cr. Foundry materials and furnaces. The manufacture and properties of gray iron, malleable iron, steel, and non-ferrous castings. Lectures, quiz, laboratory. 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.).

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. Girardi.

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.

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. 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. Mr. Girardi.

180. ADVANCED INDEPENDENT STUDY. I, II; *cr. See page 345. 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. 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. 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.

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. 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 345. 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, *Ph.D.*, Assistant Professor of 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
BASCOM, LELIA, *M.A.*, Emeritus Associate Professor of English
BATTIG, LEON, *M.A.*, Instructor in Mathematics
BRIDGMAN, LOUIS WILLIAM, *B.A.*, Instructor and Editor
BROWN, FREEMAN HARDING, *B.S.*, Assistant Chief, Bureau of Visual Instruction
BRUMM, LESTER FRANK, *M.S.*, Associate Professor of Accounting
CAUDLE, FREDERICK L., *B.S.*, Assistant Professor and Director of Civilian Pilot Training
COLBERT, ROY JEFFERSON, *Ph.D.*, Professor of Economics and Sociology
CRANE, FRANK DOUGALL, *Ph.D.*, Associate Professor of English
CROW, FRANK WARREN, *Ph.M.*, Instructor in History
DAWE, WILLIAM HOWARD, *M.A.*, Instructor in English
DEAN, CHARLES LYMAN, *B.S.*, Associate 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
ENGLER, CARL HERMAN, *B.A.*, Special Field Representative
ENGLISH, HENRY ROWLAND, *M.A.*, Professor of Business Administration
ERNST, ADOLPHINE BIANCA, *Ph.D.*, Associate Professor of German
EVANS, HERBERT PULSE, *Ph.D.*, Associate Professor of Mathematics
EVERS, JOHN KENNETH, *Ph.M.*, Instructor in English
FARRELL, MARY CATHERINE, *B.A.*, *B.M.*, Instructor and Field Representative
FORKNER, LEONE PROCKNOW, Instructor, Field Organization
FOWLER, RUSSELL WINSLOW, *M.S.*, Associate Professor of Mechanical Engineering
GANGSTAD, IDA MARIE *B,.A.*, Assistant Professor of Library Methods
GOHEEN, HARRY EARL, *Ph.D.*, Instructor in Mathematics
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, *Ph.D.*, Assistant Professor of Geography
HANSEN, JOHN ELMORE, *Ph.D.*, Chief of the Bureau of Visual Instruction
HEIMONEN, HENRY SAMUEL, *Ph.D.*, Instructor in Geography
HILLIS, LEONARD FOLSOM, *M.S.*, Assistant Professor of Civil and Structural Engineering
HOLSTEIN, THEODORE STIEHL, *M.A.*, Instructor in Economics
HOLT, FRANK OSCAR, *Ph.M.*, *D.Ped.*, Dean of the Extension Division
HOLT, HARRIETTE GRACE, *M.A.*, Assistant Professor of Mathematics
HOYT, MRS. EDITH EVANS, *M.A.*, Emeritus Assistant Professor of Education
IMHOFF, LA VERNE JOSEPH, *B.S.*, Assistant Educational Director and Recreation Supervisor, Waupun State Prison
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JONES, MRS. JEAN BRADY, *Ph.D.*, Instructor in English
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KENNY, JOSEPH WILLIAM, *M.A.*, Instructor in Geography
KRASSELT, OTTO LOUIS, *B.A.*, Instructor and Field Representative
KUBIAK, HENRY JOSEPH, *B.S.*, Instructor in Physics and Electrical Engineering
KUHN, MANFORD HINSHAW, *Ph.D.*, Instructor in Sociology
KUNEY, MRS. BERNICE DONNELLY, *M.A.*, Assistant Professor of English
LAYDE, DURWARD CHARLES, *Ph.D.*, Instructor in Chemistry
LIESCH, WILLIAM HENRY H., Instructor and Field Representative
LIGHTY, WILLIAM HENRY, *Ph.B.*, Emeritus Professor of Extension Teaching
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, KATHERINE 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
MATHIESEN, JOHN THOMAS, *M.A.*, Instructor in Geography
MAY, ALBERT EMIL, *Ph.D.*, Instructor in Mathematics
MEYER, BENNO WALTER, *B.S.*, Instructor and Field Representative
MILLER, JOHN LESTER, *Ph.D.*, Associate Professor of Economics and Sociology
MORRISON, MRS. IONE MEYERS, Instructor in Debating and Public Discussion
MYERS, ALFRED RICHARD, *B.A.*, Special Field Representative
PARKER, JAMES STRONG, *M.B.A.*, *Ph.D.*, Assistant Professor of Economics
PIETSCH, EWALD CARL, *M.S.*, Instructor in Geography
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
REBER, LOUIS EHRARD, *M.S.*, *Sc.D.*, Emeritus Dean
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
SALOUTOS, THEODORE, *Ph.D.*, Instructor in History
SANDERS, MAMIE AMELIA, *B.A.*, Instructor in Debating and Public Discussion
SCHAFER, JOSEPH J., *Ph.D.*, Instructor in History
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, *Ph.D.*, Instructor in Geography
SMITH, MRS. AMY HOYT, *M.A.*, Recorder, Department of Extension Teaching
SORENSEN, VOLMER HENRIK, *M.A.*, Instructor and Field Representative
STROUT, CLEVY LLOYD, *M.A.*, Instructor in Spanish
TILDEN, CHLOE ELIZABETH, *M.A.*, Instructor in French, German, and Spanish
TRUMP, PAUL LEROY, *Ph.D.*, Assistant Professor of Mathematics
TUFTS, KATHRIN MARIE, *M.A.*, Instructor in Spanish
WHITE, EDWARD A., *Ph.D.*, Instructor in History
ZIMMERMAN, LESTER FRED, *M.A.*, Instructor in English
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 adopted 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 ad-

vantages, 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 (being revised).
140 Cost accounting II (being revised).
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 (temporarily withdrawn).
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.
150A Business management—Abridged. $10; $16.
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. $7.50; $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) Cooperation. 3 cr. $15; $24.
135 (135) Railway transportation. 3 cr. $15; $24.
50 Practical economics. $10; $16.
51 Advanced practical economics. $15; $24.

Education

101 History of modern European education 3 cr. $15; $24.
103 History of American education. 3 cr. $14; $24.
175 (175) Foundations of method. 2 cr. $10; $16.
193 (193) Introduction to educational supervision. 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. $16; $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.
461 Aerodynamics for pilots. $7.50; $12.
462 Practical air navigation. $7.50; $12.
463 Aeronautical meteorology. $7.50; $12.
465 Civil air regulations for private and commercial pilots. $7.50; $12.
469 The airplane and its engine. $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.
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.
340 (1) Fundamentals of electrical engineering. (Temporarily withdrawn.)
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. (Temporarily withdrawn)

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; $20.
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.
216 Steam boilers. $15; $24.
217 Steam engines. $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.
230A (S. and G. 1) Heat power engineering. 4 cr. $20; $32.
230B (S. and G. 2) Heat power engineering. 4 cr. $20; $32.
235 Elementary plumbing. $16.

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 Preparatory composition. $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. (In preparation.)
5B (5B) Advanced composition. (In preparation.)
7A Narrative writing. 2 cr. $10; $16.
7B Narrative writing. 2 cr. $10; $16.
88 Specialized exposition. 2 cr. $10; $16.
88A 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.
35 The Victorian Age—poetry and essays. 3 cr. $15; $24.
37A (37A) Shakespeare. 3 cr. $15; $24.
37B (37B) Shakespeare. 3 cr. $15; $24.
131 (131) Chaucer. 3 cr. $15; $24.
39B (139) The English novel in the nineteenth century. 3 cr. $15; $24.
40A (40A) General survey of American literature. 2 cr. $10; $16.
40B (40B) General survey of American literature. 2 cr. $10; $16.
44 Contemporary essay. 2 cr. $16; $16.
141 The poetry of Tennyson. 2 cr. $10; $16.
145 The poetry of Browning. 2 cr. $10; $16.
148 (148) The English Bible as literature. 3 cr. $15; $24.
9 Elementary English. $12; $24.
10 English grammar. $12; $15.
11A Better English. $12; $15.
11B Better English. $12; $15.
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. (American literature) $25; $30.
16 Fourth year high-school English. (English literature) $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.)
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) Physiography. 3 cr. $15; $24.
1 (1) 5 cr. $25; $40.
2S Physical geology. 3 cr. $15; $24.
3 (3) Economic geography. 3 cr. $15; $24.
101 (101) Geography of Europe. 3 cr. $15; $24.

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.
27 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 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 composition. 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. $10; $15.
88 Modern European history. $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, 1492-1865. 3 cr. $15; $24.
4b (4b) History of the United States, 1865-1941. 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 social studies. 2 cr. $10; $16.
138a (138a) The French revolution and the Napoleonic period, 1789-1815. 2-3 cr. $10 or $15; $16 or $24.
138b (138b) History of Europe, 1815-1871. 2-3 cr. $10 or $15; $16 or $24.
139a (139a) The age of imperialism, 1871-1918. 2-3 cr. $10 or $15; $16 or $24.
139b (139b) Recent and contemporary European history, 1918-1941. 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.
15 Home furnishing and decorating. $5; $8.
25 The school lunch. $5; $8.

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. $15; $24.
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.
1HS Elementary Latin. $18; $21.
2HS.A. Third semester high-school Latin. $9; $11.
2HS.B. Fourth semester high-school Latin (For the two-year Latin course). $9; $11.
2B Fourth semester high-school Latin (For the three-year Latin course). $9; $11.
3HS Cicero: *Orations.* $18; $21.
4HS Virgil: *Aeneid.* $18; $21.

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

9 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 (8) 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.
1A (3a) College algebra and trigonometry. 4 cr. $20; $32.
3a Plane analytic geometry. 3 cr. $15; $24.
3b Solid analytic geometry. 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 (122) Projective geometry. 3 cr. $15; $24.
111 (120, in part) Advanced calculus. 3 cr.
112 (112) Differential equations. 3 cr. $15; $24.
112a Differential equations. 3 cr. $15; $24.
112b Partial differential equations. 1 cr. $5; $8.
113 (104, in part) Theoretical mechanics, 3 cr. $15; $24.
114 (106, in part) Modern analytic geometry. 3 cr. $15; $24.
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 Introduction to statistics. 2 cr. $10; $16.
50 Algebra for engineers. $10; $15.
51 (51) Elementary mathematical analysis. 5 cr. $25; $40.
52 (52) Elementary mathematical analysis. 5 cr. $25; $40.

53 (53) Elementary mathematical analysis. 5 cr. $25; $40.
54 (102a) Differential and integral calculus. 4 cr. $20; $32.
55 (102b) Calculus. 4 cr. $20; $32.
56 (55, in part) Integral calculus. 4 cr. $20; $32.
110 (110) Higher mathematics for engineers. 6 cr. $30; $48.
31 Practical arithmetic. $6; $10.
32 Practical algebra. $6; $10.
33 Mensuration and practical geometry. $6; $10.
34 Practical trigonometry and logarithms. $6; $10.
35 Practical calculus. $5; $10.
41 Agricultural arithmetic. $5; $10.
41A Farm accounts. $2; $3.
45 Commercial arithmetic. $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 Pharmaceutical technique. 3 cr. $15; $24.
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.
1aE (1, in part) University physics. 3 cr. $15; $24.
1bE (1, in part) University physics. 3 cr. $15; $24.
51E (51) Engineering physics. 3 cr. $15; $24.
52E (52) Engineering physics. 3 cr. $15; $24.
117 (117) Physical optics. (Temporarily withdrawn)
60 Modern physics. 4 cr. $20; $32.
91E (91) Sound. 1 cr. $5; $8.

Political Science

7 (7) American government (National). 3 cr. $15; $24.
13 (13) Municipal government. 2 cr. $10; $16.
25 (25) Survey of world politics. 3 cr. $15; $24.
123 (123) American diplomacy: organization and practice. 2 cr. $10; $16.
127 (127) Comparative government: the British Commonwealth. 3 cr. $15; $24.
128 (128) Comparative government: continental Europe. 3 cr. $15; $24.
134 (134, in part) County and township government in the United States. 2 cr. $10; $16.
143 (143) Introduction to public administration. 3 cr. $15; $24.

Psychology

1 (1) General psychology. 3 cr. $15; $24.
10 Human behavior. $7.50; $12.
50 (50) Applied psychology. 2 cr. $10; $16.
143 (143) The psychology of individual differences and the measurement of intelligence. 3 cr. $15; $24.

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.
50 Human relations. $10; $16.
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, in part) 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, in part) The teaching of speech. 2 cr. $10; $16.

Statistics

20 Introduction to statistics. 2 cr. $10; $16.

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 BRANCH OF THE UNIVERSITY

CHARLES MALTADOR PURIN, *Ph.D.*, Professor of German, Director (Emeritus)
GEORGE AMBROSE PARKINSON, *Ph.D.*, Assistant Director; in charge of evening classes (on leave)
ROSS HARVEY BARDELL, *Ph.D.*, Acting 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 E., *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.*, Assistant Professor of History
BELL, EARL ROSS, *M.A.*, Instructor in Physics
BOZAK, IRENE MARY, *B.A.*, Instructor and Assistant to Registrar
BROOKS, DUDLEY COOKINGHAM, *M.A.*, Assistant Professor of English
CREAMER, JOHN JOSEPH, *B.A., LL.B.*, Associate Professor of English
DEPTULA, SZYMON STANISLAW, *M.A.*, Instructor in Polish
DOERING, HELMUTH REINHOLD, *B.A., M.B.A.*, Assistant Professor of Business Administration
FULLER, WILLIAM JOHN, *B.A.*, Professor of Civil and Structural Engineering
GRANT, HIRAM ELVIN, *B.S.*, Assistant Professor of Drawing
HAYES, MERLIN LEWIS, *Ph.D.*, Assistant Professor of Zoology
HOLMES, MRS. ELIZABETH KATZ, *M.A.*, Assistant Professor of English
HOLST, EDWARD DEMIN, *Ph.D.*, Instructor in English
HUPPERT, BEATRICE, *B.S.*, Instructor in Chemistry
HURSLEY, FRANK MCCALL, *Ph.D.*, Associate Professor of English
JAECK, ELSA LAURA, *B.A.*, Librarian
KENNEY, JOHN FRANCIS, *M.A.*, Assistant Professor of Mathematics
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.*, Registrar
LAWRENCE, LEE EDWARD, *Ph.D.*, Assistant Professor of History and Political Science
MARDEN, MORRIS, *Ph.D.*, Associate Professor of Mathematics
MARTIN, MILES J., *Ph.D.*, Professor of Physics
MILLINGTON, PAUL EMANUEL, *Ph.D.*, Associate Professor of Chemistry
MITCHELL, WILBUR L., *Ph.D.*, 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 (on leave)
PERSON, PHILIP HILMORE, *Ph.D.*, Associate Professor of Sociology
PURIN, CHARLES MALTADOR, *Ph.D.*, Director; Professor of German (Emeritus)
REINDERS, VICTOR A., *Ph.D.*, Assistant Professor of Chemistry
ROEMING, ROBERT F., *Ph.D.*, Instructor in Romance Languages
ROTH, WILLIAM EDWARD, *Ph.D.*, Associate Professor of Mathematics

ROUSE, THEODORE ALTON, *Ph.D.*, Associate Professor of Physics
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
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
WEIDMAN, ROBERT HULBURT, *Ph.D.*, Assistant Professor of German and French
WESLE, HERBERT WILLIAM, *B.S.*, Associate Professor of Topographic Engineering
WOLF, LOUISE ADELAIDE, *Ph.D.*, Assistant Professor of Mathematics
WOOTON, JAMES CHARLES, *B.S.*, Instructor in Chemistry
WRIGHT, HENRY WILKES, *M.A.*, Instructor in Psychology
YOUNG, CHARLES EDMUND, *Ph.D.*, Professor of Romance Languages

The work 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, Letters and Science (general), including pre-commerce, pre-journalism, pre-law, pre-library, pre-medicine, pre-nursing, pre-education, and social work.

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 credit 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, and Refrigeration.

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 LOUIS 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; The Anti-Federalists, Excerpts from Pages of Leading Opponents of the Federal Constitution; *American Diplomacy; *American Life as Represented in Native One-Act Plays; Ancient Greek Civilization; American Costitution: Selected list of references with program suggestions; Architecture; Banking; Better Speech; *Browning; 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; Dominion of Canada and Newfoundland; Educating the Consumer: Part I, Consumers in the Modern Market, Part II, Consumers' Guide to Commodity Buying—Sec. I, Income Division, Food, Clothing, Sect. II, Household Textiles, Equipment, Furniture, Household Furnishings, Beauty Aids, Toilet Articles, Drugs; From Village to City; Glass—Old and New; 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; Part IV, Landscaping small grounds of civic importance; Modern Drama; Music in Twentieth Century America; *Novel of the Nineteenth Century; One Hundred Years of Public School Music; 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; Religious Music; Representative Americans; Rural School Grounds—a separate from Public Problems in Landscape Design, Part III; South America; Scandinavia; *Shakespeare; 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.

These programs may be purchased inside Wisconsin at from five to fifty cents per copy, with a 15% discount on the purchase of five or more copies; outside Wisconsin at from ten 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 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; Compulsory Military Training. The Department will supply any of these bulletins upon receipt of the list price.

Mimeograph 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 Unicameral Legislatures, America's Foreign Policy, Government Ownership of Railroads, and Compulsory Military Training 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 insterest 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.

SPECIAL OCCASION LECTURES. This department furnishes speakers for special occasion, 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. 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 educational 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; to stimulate interest in citizenship and good government, to collect and organize material; and to assist local groups in studying wartime problems and postwar planning.

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 cooperation 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

The University Extension Division maintains a staff of field representatives in various cities of the State who through constant contact with the central office at Madison are able to interpret, for interested persons, the services available from the University. Personal conferences are possible, and without cost. The services about which these representatives are particularly well informed are: correspondence-study courses on the college level; local classes including wartime activities such as the Civilian Pilot Training and engineering, science, and management defense training courses; 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 AND PURPOSES

The University of Wisconsin is open to all properly qualified students without regard to state lines. It is the purpose of the University to offer opportunities for advanced instruction and research to as wide a constituency as possible.

The Graduate School aims to serve the needs of men and women of college training or equivalent attainment who desire a larger and more thorough acquaintanceship with scholarship and research than can be obtained in the current undergraduate course. 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.

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.

While there is no separately designated graduate faculty in the University of Wisconsin, the departments which offer graduate instruction are grouped together for certain purposes into subject-matter divisions. The purposes of these divisions are (1) to regulate, within bounds fixed by the Graduate School, graduate instruction and procedure in related fields; (2) to discuss matters of common interest; (3) to promote scholarship and research through the cooperation of the several departments. These divisions are as follows:

Biological and Medical Sciences
Chemistry
Earth Sciences
Education and Allied Fields
Engineering
Fine Arts
Language and Literature
Mathematics and Physics
Social Sciences

ADMISSION AND REGISTRATION

ADMISSION. Admission to the Graduate School is based primarily upon the undergraduate record. In order to avoid delays incident to the opening of the session, 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 of any graduate work he may have done, together with information as to the proposed field of study. *An official transcript from each school attended is necessary.* 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 and other approved institutions must have at least 70 semester hours of academic work outside of their major and must have a grade-point average of 1.5 to be admitted to full standing in the Graduate School. In some cases students with grade-point averages as low as 1.25 may be admitted on probation. Graduates of other institutions must have undergraduate

preparation equivalent to that required at the University of Wisconsin. Extension work may be applied as credit for admission only if taken at the University of Wisconsin or at the institution from which the student was graduated.

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 in 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.

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.*

EXTRA SESSION REGISTRATION. 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 priod 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 (3) weeks of such extra session credit.

SUMMER SESSION

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 graduate work. See page 388.

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. The eight-week session in the Graduate School runs concurrently with the summer session of six weeks, which is open to undergraduates and graduates.

Full residence credit 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 graduate courses.
3. One eight-week and one six-week graduate course if extra work is assigned in the last two weeks of the eight-week course.
4. One eight-week and one six-week graduate course plus thesis.

The fee for the summer session is $35.00 for six weeks and $50.00 for eight weeks. A proportional fee of $5.00 per week is charged for resident work continued beyond the close of the summer session. If the registrant was not in the summer session immediately preceding, $8.50 is charged for the first week and $5.00 for succeeding weeks in the same summer.

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 pursued graduate study successfully.

The standard of work on the graduate level requires that a student receive grades of "B" or better 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 shall determine whether the student shall continue his graduate studies in the University.

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.

The nature of the student's undergraduate course will determine the specific master's degree for which he may become a candidate. The Administrative Committee is authorized to modify requirements in the case of students whose records indicate exceptional qualifications for graduate work.

THE MASTER'S DEGREE

The University of Wisconsin confers the degrees of Master of Arts, Master of Science, and Master of Philosophy.

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 corresponds 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 (36 weeks) or its equivalent in summer sessions.

Only courses numbered 100 and above may count as graduate credit.

The following regulations for the attainment of masters' degrees apply to all candidates in residence:

1. During a period of at least one academic year or the equivalent in summer sessions, the candidate must pursue a course of graduate study characterized by a definiteness of purpose and approved by his department. At least one half of the graduate work must lie within 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. Nine to twelve credits per semester is considered a normal graduate program.

3. Students who, during their candidacy for a master's degree, are engaged in teaching, or other remunerative 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 graduate work offered in support of his candidacy. The time of this examination will be determined and the examining committee will be 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. 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 must be approved by the major professor under whose guidance it has been done. It shall be deposited in the University Library by the second Friday before Commencement.

6. 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. (a) Complete semester or quarters of graduate work may be transferred from another institution and counted toward a master's degree. In no case may more than one semester (18 weeks) of residence be transferred from another institution. In some departments all the work for the master's degree must be done in residence at the University of Wisconsin.

(b) Residence and course credit earned in the summer sessions of other universities, approved by the Administrative Committee of the Graduate School, may be transferred in an amount not to exceed twelve credits and twelve weeks of residence.

MASTER OF 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 Bachelor of Music degree.

MASTER OF SCIENCE 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.

MASTER'S 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.

DOCTOR OF PHILOSOPHY

The Doctor of Philosophy is a research degree. It is not a degree conferred solely as a result of study, no matter how faithful, extending over any prescribed period; it does not rest merely upon computation of time or an 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.

RESIDENCE. Candidacy for the degree is based upon resident graduate study over a period of not less than three academic years (108 weeks), at least three semesters (54 weeks) of which must be spent at this University. Only complete semesters or quarters at another institution will be counted for transfer. 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.

Candidates whose undergraduate preparation is not adequate or who are engaged in teaching or other remunerative employment will be required to devote to their studies such period in excess of the minimum requirment of three years as may be designated by the Administrative Committee of the Graduate School. It is desirable 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.

Work done *in absentia* in past years and credited for the master's degree cannot be used to shorten the residence requirement for the degree of Doctor of Philosophy. No *absentia* or correspondence work is now credited toward an advanced degree.

A student may, however, be granted leave 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 only in special cases and under definite limitations.

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 in this University 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.

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 coextensive with the work of a single department, or with one of the "subjects" under which certain departmental plans of courses are arranged, or which may be constructed from 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 student may choose an instructor in his department as a major adviser, or the department may assign him to such an adviser. The candidate will consult the major professor in the selection and arrangement of a program of work embracing both the major and minor fields. The major professor will have immediate supervision of the thesis.

ADMISSION TO CANDIDACY. A student is not permitted to take the final examination for the degree until he has been formally admitted to candidacy by passing a preliminary test. A student must satisfy the reading knowledge requirement in French

and German before he will be allowed to take the preliminary examination. The preliminary examination 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 examinations have 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 statement: (a) Departmental recommendations of candidacy based upon a formal written examination, or an oral examination before a duly appointed committee, or such other substantial tests 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 (subject to future verbal change) approved by the major professor.

This application must be approved by the Administrative Committee, which will specify the earliest permissible date for the final oral examination. If, however, 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.

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. Such delimitation of the subjects to be offered in the final oral examination must be made a matter of record with the Dean of the Graduate School.

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. This examination shall be open to all members of the Graduate Faculty.

THESIS. At any time after admission to candidacy, and at least thirty days prior to the final examination, the candidate must 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 thesis must be the candidate's own work. It may be the result of research enterprises in which others have collaborated, but in such instances the candidate will be required to present in his own style a substantial portion which represents his own contribution. 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 by the second Friday before Commencement.

The University publishes the summaries of all Doctor of Philosophy theses. The Editorial Board of the Graduate School examines these summaries and, if necessary, makes 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 tenative draft of the summary.

Detailed information concerning the formal requirements for the summary will be sent to each candidate.

All successful candidates for the doctorate shall pay a thesis summary publication fee of $15.00, with the understanding that the fund so collected each year will be used in the prompt publication of a volume of summaries of theses, the length and character of which is to be determined by the Dean of the Graduate School.

UNIVERSITY PUBLICATIONS

(See page 1)

FEES AND EXPENSES

(See pages 2-5)

FELLOWSHIPS—SCHOLARSHIPS—ASSISTANTSHIPS

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 University has available some loan funds for all students. These loans are of an emergency character and are restricted in amount and duration. Further information may be obtained at the Student Loan Office, Administration Building.

A more detailed bulletin of the Graduate School may be obtained by writing to the Dean of the Graduate School.

SUMMER SESSION

SCOTT H. GOODNIGHT, DEAN

The Summer Session*, instituted forty-four 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 or 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 applicaiton 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 20. 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 389 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 .

* The length of the Summer Session is subject to change in 1943. Announcement of any new arrangement will be made by special bulletin.

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, fourteen for the fourteen-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

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	27.50
General Session—Undergraduates	6 weeks	32.00
Special Session—Undergraduates	8 weeks	41.00
Law School	14 weeks	*60.00

II. For graduates admitted to registration in the Graduate School:

General Session Graduate School	6 weeks	$35.00
Special Courses Graduate School	8 weeks	50.00

PRE- AND POST-SESSION FEES

Undergraduate: $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.

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.

* The Law School session is offered in two parts of seven weeks each and courses are arranged so that a student may take either seven-week period separately. If only one seven-week period is taken the fee is $35.

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.

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

ARPAD L. MASLEY, ACTING DIRECTOR

The Division of Physical Education and Intramural Athletics for men has jurisdiction over all required and intramural physical education activities.

REQUIREMENTS FOR MEN. Male undergraduates are required to take two hours of physical education per week during each semester of their residence at the University.

Juniors and seniors enrolled in the College of Engineering or in an advanced course in military science and students who are certified as physically unfit by the Department of Student Health are exempt from physical education. Exemption is also provided for those male students who, from semester to semester, demonstrate their physical fitness. Students who are ineligible for military science, but not certified as physically unfit for physical education will meet the physical education requirement only during the freshman and sophomore years, unless accepted by a Selective Service Board, in which case the requirement will revive for the remainder of their undergraduate residence at the University. Students who take both band and military science will not be required to take physical education.

The physical education requirement 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 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	Gymnastics	Football
Basketball	Track	Boxing	Golf
Crew	Wrestling	Cross-country	Tennis
Fencing			

INTRAMURAL SPORTS

Basketball	Badminton	Track	Softball
Bowling	Boxing	Water-polo	Golf
Cross-country	Hockey	Wrestling	Tennis
Touch football	Swimming	Baseball	Crew
Volleyball		Rifle Marksmanship	

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 the old and two from the new 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 division, 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. All freshman and sophomore women are required to take the equivalent of two hours of physical education per week for two years. Students certified as physically unfit by the Department of Student Health are exempt from this requirement.

The school year is divided into four terms for purposes of registration: (1) Fall, (2) Winter I, (3) Winter II, (4) Spring. The activity program is classified into four groups. First-year students must elect one activity from each of the four groups, and must reach a prescribed standard of attainment in each activity selected. During the second year, after the group requirements have been fulfilled, the time remaining may be spent in any activities desired. Every student must attain a posture and physical fitness standard. Special posture and corrective classes will be prescribed for those recommended by the Corrective Department.

ACTIVITY PROGRAM GROUPS

Team Sports	Aquatic	Dance	Individual
Basketball	Canoeing	Folk	Archery
Hockey	Diving	Modern	Badminton
Soccer	Life Saving	Social	Bowling
Softball	Swimming	Square	Fencing
Speedball	Water Safety	Tap	Gymnastics and apparatus
Volleyball			Golf
			Riding
			Tennis
			Tumbling

MILITARY SCIENCE

HERBERT H. LEWIS, Colonel of Infantry, AUS, Commandant and Professor of Military Science and Tactics

FRANKLIN W. CLARKE, *B.A., LL.B.*, Major of Infantry, AUS, Associate Professor of Military Science and Tactics

JOHN O. NEIGHBOURS, JR., *B.S.*, Captain, Corps of Engineers, AUS, Assistant Professor of Military Science and Tactics

JOSEPH J. PEOT, *B.S.*, Captain, Signal Corps, AUS, Assistant Professor of Military Science and Tactics

RICHARD B. PORT, First Lieutenant of Infantry, AUS, Instructor in Military Science and Tactics.

JORDAN L. PAUST, *Ph.B.*, First Lieutenant of Infantry, AUS, Instructor in Military Science and Tactics

KOLAR B. CHLADEK, *B.S.*, First Lieutenant, Corps of Engineers, AUS, Instructor in Military Science and Tactics

ARTHUR H. PETERSEN, *B.S.*, First Lieutenant, Corps of Engineers, AUS, Instructor in Military Science and Tactics

DONALD A. LILLEGREN, *B.S.*, Second Lieutenant of Infantry, AUS, Instructor in Military Science and Tactics

ROBERT R. RIPPEY, Second Lieutenant of Infantry, AUS, Instructor in Military Science and Tactics

FRANK T. CAMERON, Second Lieutenant of Infantry, AUS, Instructor in Military Science and Tactics

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 compulsory for all male freshman and sophomore 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.

Instruction within the department is conducted by Officers of the Army of the United States 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.

No academic credit is given for the basic course, but two academic credits are given for each semester 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 between the first and second year of the advanced course. Upon satisfactory completion of the advanced course, including the prescribed summer camp training, graduates thereof who are 21 years of age are tendered commissions as Second Lieutenants in the Appropriate branch of the Officers' 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 tendered commissions in the Officers' 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 prior to or at the time of registration. Advanced standing cannot be given to students who have received military training other than that mentioned above.

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 $30.00 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.

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 shoulder to shoulder and telegraphic matches with all the leading schools and colleges in the United States. Drill teams composed of selected students are maintained by the department. 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 to 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; 0 cr. Citizenship; military history; military courtesy and discipline; map reading; leadership; rifle marksmanship; military sanitation and first aid; organization of infantry.

2. FIRST-YEAR BASIC ENGINEER. Yr; 0 cr. Same as Military Science 1.

3. FIRST-YEAR BASIC SIGNAL CORPS. Yr; 0 cr. Same as Military Science 1, except that elementary wire communication is substituted for rifle marksmanship.

21. SECOND-YEAR BASIC INFANTRY. Yr; 0 cr. Leadership; automatic rifle; infantry weapons; technique of rifle fire; combat training.

22. Second-Year Basic Engineer. Yr: 0 cr. Leadership; infantry weapons; technique of rifle fire; combat training; military sketching and mapping; aerial photography; rigging.

23. Second-Year Basic Signal Corps. Yr; 0 cr. Leadership; radio field systems, material and procedure; code practice.

ADVANCED COURSES

128. Principles of Camouflage. I, II; 3 cr. Basic theory and application of camouflage technic. Experimental research with new materials. Airplane inspection of field work. Prerequisite: Junior standing. Capt. Neighbours, Mr. Varnum, Mr. Aust.

131. First-Year Advanced Infantry. Yr; 2 cr. Motor vehicles; chemical warfare; aerial photographic reading; leadership; weapons; combat training; administration.

132. First-Year Advanced Engineer. Yr; 2 cr. Military bridging; demolitions; chemical warfare; field fortifications; leadership; combat training; administration; organization of the ground.

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.

141. Second-Year Advanced Infantry. Yr; 2 cr. Military history; military law; leadership; tanks and associated arms; combat training; property; methods of instruction.

142. Second-Year Advanced Engineer. Yr; 2 cr. Military history; military law; leadership; property; combat training; military roads; company administration; engineer platoon and company.

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.

DIVISION OF SOCIAL EDUCATION

PORTER F. BUTTS, DIRECTOR

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, square dancing, skiing, archery, billiards, bowling, sailing, crafts, life drawing, scene painting, and stage management.

DIVISION OF RESIDENCE HALLS

D. L. Halverson, Director

The Division of Residence Halls provides living accommodations for two thousand men and women students in University-owned residence halls. Standards are high, and a professionally trained staff assists in the operating of these dining and dormitory units.

Within the halls a program of social education is developed, in accord with the University's philosophy of teaching, beyond classroom and laboratory, a useful and intelligent "way of life," by which the personality will be strengthened and enriched. The halls are "home," with all the comforts and diversions of home, provisions and fellowship for leisure-time activity.

Graduate counselors, or "Fellows," members of the Division's academic staff, live with the students. Along with others of the Division's faculty, they assist the residents in orienting themselves to the demands of university life, promote scholastic attainment, encourage the development of a strong student self-government organization, and are available for consultation with the individual on any and all problems.

Hobby and recreational facilities are present in photography, woodworking, amateur radio, journalism, chorus, and all sports; these preoccupations and many others—libraries, music rooms, etc.—encourage healthy, interesting, and pleasurable use of the spare moments, as well as spare hours, which intersperse classes, study and routine living.

Social events vary in character from informal exchange dinners between men's and women's houses, to faculty speakers, teas, open houses, formal dances. The intent is to familiarize residents sufficiently with the rudiments of social etiquette so that they will happily enjoy average social contacts, at least, without the hesitancy and reluctance which characterize unfamiliarity.

All emphasis is placed upon the healthy development of the individual in a beneficial home environment, within the larger pattern of civic group consciousness and responsibility. To this end the Division is staffed with members of mature and capable judgment, who have been schooled in this philosophy of the University of Wisconsin.

DIVISION OF RADIO EDUCATION

H. B. McCarty, Director

The Division of Radio Education was created by action of the University Board of Regents on June 21, 1941, after the State Legislature had officially transferred "the management, control, and operation of Station WHA from the Department of Agriculture to the Board of Regents of the University." Actually this gave formal recognition to an activity which had been carried on by the personnel of the University since the days of the first telephonic broadcasts from the Campus in 1917.

The Division is set up primarily for state service rather than instruction. It uses its broadcasting facilities to "take the University to the people," and shares these facilities also with other educational, governmental and civic agencies.

Station WHA, known as "the oldest station in the nation," grew out of early laboratory work in radio telephony with the experimental station 9XM. The University broadcasting station operates with 5,000 watts power with daytime use of the 970 kc. regional channel. It is on the air from sunrise to sunset with an average of from 70 to 75 hours of programs each week. It is entirely non-commercial and sells no time.

Radio Hall is the Campus broadcasting center and most of the broadcasts originate there. Some come from other campus pick-up points, the Memorial Union studios or theaters, the State Capitol, and from remote points reached by the use of the short-wave relay transmitter WDAC. With five studios, two control rooms, workshop, script library, offices, and complete broadcasting equipment including a pipe organ, Radio Hall is a laboratory in which training and experience can be gained on an extra-curricular basis.

Formal credit is not granted for participation in the broadcasting activity. It is entirely voluntary and only students possessing visible aptitudes for the work are encouraged to engage in it. Participants are selected on the basis of auditions and actual demonstrations of ability. After being accepted for training, students are placed under staff specialists for personal supervision. They are advanced as rapidly as they are ready for it and then added to the station's student staff. There they take responsibilities and develop under actual broadcasting conditions. The success of this kind of training is shown by the large number of these individuals going into professional radio work upon graduation. Most of these students take courses in the Department of Speech to supplement their training.

In the Division of Radio Education the University has a staff of workers skilled in the various phases of broadcasting—management, writing, speaking, production, music, education, and engineering. This staff is responsible for the programming of WHA and works with talented individuals and specialists in various fields to assist them with the effective presentation of their material over the air.

Numerous university departments take part in the broadcasting activity, either by presenting planned series of broadcasts or by offering special features to be incorporated in the service of the station.

A wide range of programs is broadcast each day. The Wisconsin School of the Air provides broadcasts for children listening in their classrooms. The Wisconsin College of the Air provides out-of-school "students" with directed program sequences. The

Farm Program keeps rural Wisconsin abreast of developments coming through the College of Agriculture and the experiment station. The Homemakers' Hour gives housewives information and inspiration. Broadcasts from university classrooms serve to help adults share the pleasure of participating in student courses. Civilian defense, children's stories, news, special events, organization broadcasts, religious features, state affairs and like programs combine in a well-rounded service. Good music is expected over WHA and is given through fine recorded or transcribed selections, recitals by student and faculty musicians, and concerts by university musical organizations.

The broad scope of the broadcasting service enables the University station to serve well the varied interests of Wisconsin listeners. A significant feature is that the programs are planned with the listeners' interests, rather than those of a sponsor who may buy time on the air, the primary consideration. University auspices give the WHA program service an added stamp of authenticity.

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, kiln drying, and chemical seasoning 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 woodpreserving 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 1943-44 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 1943-44. 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 phoem 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
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 1943-44 and in alternate years. Mr. Hawley, Mr. Baechler, Mr. Sherrard, Mr. Ritter, 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. 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 113,153 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.

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 latitudes 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 photo-electric 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 phamphlets. 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, formerly directed by Professor A. R. Whitson, was done in cooperation with the United States Department of Agriculture and the College of Agriculture of the University. Since 1931, state funds have not been available for this work. Soils are studied with reference to their best agricultural use and the fertilizer and other treatment necessary to make them most productive, including a study 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

H. M. Coon, 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, 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, 1,717,905 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 oved 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 140,668 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.

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, 1940 there were admitted approximately 1261 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 is being investigated, particularly by electric shock.

STATE HISTORICAL SOCIETY

EDWARD P. ALEXANDER, SUPERINTENDENT

This distinguished and nationally known Society was formed in 1849, within a year after Wisconsin had become a state. The Society, supported by the State and a trustee of the State, has in its ninety-three years done much to achieve its aims of preserving and disseminating the history of the State and of the Middle West.

The Library of the Society is today a busy historical laboratory, rendering great service to the people of the State, the University, and scholars all over the country. The Society's building is situated on the lower campus of the University, and one wing is occupied by the University Library. The Wisconsin Historical Library is the largest of

any historical society in the nation. It includes 660,000 titles, and is growing at the rate of more than 10,000 each year. The Society also maintains a Historical Museum on the fourth floor of its building, with special changing exhibitions displayed in the main floor corridor. The Museum is especially strong in Wisconsin Indian material.

An active trained research staff has published many volumes dealing with Wisconsin history. The *Wisconsin Magazine of History,* a quarterly, is now in its twenty-fifth year. Thirty-one volumes of *Wisconsin Historical Collections* have been issued, as well as separate annual publications of *Proceedings; An Economic History of Wisconsin* by Frederick Merk; *The Wisconsin Domesday Book* (four volumes of general studies and one volume of town studies) by Joseph Schafer; *The French Régime in Wisconsin and the Northwest* and *The British Régime in Wisconsin and the Northwest* by Louise Phelps Kellogg; and several other volumes.

The State Historical Library is unequalled in the field of Middle Western history and has one of the most important newspaper (more than 50,000 volumes) and periodical collections in the United States. In local history and genealogy it is especially well equipped. The printed colonial records and government documents, state and federal, are equally satisfactory. The Draper Collection of manuscripts is the richest collection extant for the study of upland Virginia, North Carolina, Georgia, Kentucky, Tennessee, and the old Northwest during the colonial and Revolutionary periods. It contains such rare items as thirty-four volumes on the life of Daniel Boone and sixty-five volumes on the career of George Rogers Clark. There are also excellent manuscript collections on the American Fur Company, Wisconsin governors, early settlers, immigration, lumbering, and recent Wisconsin statesmen. The John R. Commons Labor Collection, comprised of books, manuscripts, labor newspapers, convention proceedings, agreements, and the like, is the finest in the country.

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 publications of many historical societies.

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-two 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.

ARBORETUM, WILD LIFE REFUGE, AND FORESTRY PRESERVE

G. Wm. Longenecker, Executive Director
John Curtis, Director of Plant Research
Aldo Leopold, Director of Animal Research

The University Arboretum, Wild Life Refuge, and Forestry Preserve is a tract of 1137 acres of land on the shore of Lake Wingra, on the outskirts of Madison. Its purpose it to serve the University as an outdoor laboratory for the study of plants, birds, mammals, insects, aquatic life, soils, and their interrelation in nature.

An Arboretum is a necessary part of an adequate educational and scientific program where natural sciences, conservation, and nature education are being studied and taught. The indoor laboratory method of instruction must be supplemented by an outdoor laboratory or outdoor instruction, it we are to make progress in these fields. An Arboretum also plays the same role in experimenting with woody plants as the experimental farm plays with agronomic crops.

Types of primitive Wisconsin landscape with their flora and fauna are being preserved and restored at a point near the University. Plants and animals are being studied as individuals and as groups, particular emphasis being made on ecological relationships. These communities will include a large prairie area, the principal types of forest, and the principal types of marsh land.

Some land is also set aside for displaying, testing, and improving horticultural material, and for experimentation with nut-bearing plants.

To date over 120,000 trees and shrubs and a large quantity of prairie plants have been planted.

The area is administered by a faculty committee, with A. F. Gallistel as Chairman.

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.

SUMMARY OF STUDENTS

ACADEMIC

MAY

Division	Men	Women	Total	Men	Women	Total
GRADUATE SCHOOL	Fellows			Scholars		
1. Letters and Science	39	8	47	17	8	25
2. Engineering	4	0	4	0	0	0
3. Agriculture	44	0	44	3	1	4
4. Home Economics	0	1	1	0	1	1
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.)	88	9	97	20	10	30
PROFESSIONAL SCHOOLS	Fourth Year			Third Year		
8. Law	.....	.....	.....	104	2	106
9. Medicine	39	5	44	61	5	66
UNDERGRADUATES	Seniors			Juniors		
College of Letters and Science Courses						
10. B.A. Course	277	288	565	222	309	531
11. Ph.B. Course	181	29	210	183	32	215
12. B.S. Medical Science	38	1	39	.....	.....	.....
13. Chemistry	51	1	52	41	3	44
14. Humanities	0	3	3	0	1	1
15. Classical Humanities	2	0	2	0	1	1
16. Hygiene	0	60	60	0	46	46
17. Medical Technology	0	16	16	0	24	24
18. Pharmacy	39	3	42	36	4	40
19. Premedical	13	1	14	105	9	114
Schools						
20. Commerce—B.A.	68	15	83	73	8	81
21. Commerce—Ph.B.	92	3	95	67	0	67
22. Journalism	38	37	75	48	49	97
23. Music	10	15	25	10	16	26
24. Total Letters and Science (10-23 incl.)	809	472	1,281	785	502	1,287
College of Engineering						
25. Chemical	72	0	72	93	0	93
26. Civil	44	0	44	35	0	35
27. Electrical	82	0	82	67	0	67
28. Mechanical	126	0	126	131	0	131
29. Mining and Metallurgical	31	0	31	16	0	16
30. Total Engineering (25-29 incl.)	355	0	355	342	0	342
College of Agriculture						
31. Long Course	203	2	205	146	4	150
32. Home Economics	0	183	183	0	136	136
33. Total Agriculture (31-32 incl.)	203	185	388	146	140	286
School of Education						
34. *Teachers' Certificates only*[1]	.....	.....	.....	.....	.....	.....
35. Academic Fields	44	144	188	33	108	141
36. Applied Art	6	14	20	1	17	18
37. Art Education	4	22	26	12	20	32
38. Physical Education	21	35	56	28	31	59
39. Total Education (35-38 incl.)	75	215	290	74	176	250
School of Nursing						
40. *Hygiene Course*[1]	*0*	*60*	*60*	*0*	*46*	*46*
41. Graduate Nurse	.....	.....	.....	0	3	3
42. *Total Nursing (40-41 incl.)*[1]	*0*	*60*	*60*	*0*	*49*	*49*
43. Library School	.....	.....	.....	.....	.....	.....
44. Physiotherapy	.....	.....	.....	.....	.....	.....
45. Total Undergraduates (24, 30, 33, 39, 41, 43, 44)	1,442	872	2,314	1,347	821	2,168
47. Less twice-counted (Law, Medicine, Library School, and Senior-Graduates)						
48. Net Grand Total						
46. Grand Total						

[1] Figures in italics are not carried into totals because already included in table.

BY CLASSES, COURSES, AND SEX

YEAR, 1941-42

1, 1942

Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total	Item
Other Graduates									Totals			
528	143	671	.....	.....	.....	.....	.....	.....	584	159	743	1
45	0	45	.....	.....	.....	.....	.....	.....	49	0	49	2
210	7	217	.....	.....	.....	.....	.....	.....	257	8	265	3
0	31	31	.....	.....	.....	.....	.....	.....	0	33	33	4
101	60	161	.....	.....	.....	.....	.....	.....	102	60	162	5
9	6	15	.....	.....	.....	.....	.....	.....	9	6	15	6
893	247	1,140	.....	.....	.....	.....	.....	.....	1,001	266	1,267	7
Second Year			First Year									
69	7	76	88	6	94	.....	.....	.....	261	15	276	8
62	2	64	76	7	83	.....	.....	.....	238	19	257	9
Sophomores			Freshmen			Adult Specials and Unclassified						
370	402	772	389	508	897	1	1	2	1,259	1,508	2,767	10
301	47	348	290	53	343	.....	.....	.....	955	161	1,116	11
.....	.....	.....	.....	.....	.....	.....	.....	.....	38	1	39	12
47	5	52	57	9	66	1	0	1	197	18	215	13
1	2	3	2	6	8	.....	.....	.....	3	12	15	14
1	0	1	1	1	2	.....	.....	.....	4	2	6	15
0	32	32	0	80	80	.....	.....	.....	0	218	218	16
0	35	35	0	29	29	.....	.....	.....	0	104	104	17
48	4	52	36	3	39	.....	.....	.....	159	14	173	18
117	15	132	132	15	147	.....	.....	.....	367	40	407	19
.....	.....	.....	.....	.....	.....	.....	.....	.....	141	23	164	20
.....	.....	.....	.....	.....	.....	.....	.....	.....	159	3	162	21
.....	.....	.....	.....	.....	.....	.....	.....	.....	86	86	172	22
13	15	28	14	32	46	.....	.....	.....	47	78	125	23
898	557	1,455	921	736	1,657	2	1	3	3,415	2,268	5,683	24
101	0	101	115	1	116	.....	.....	.....	381	1	382	25
45	0	45	52	0	52	.....	.....	.....	176	0	176	26
51	0	51	77	0	77	.....	.....	.....	277	0	277	27
164	0	164	232	0	232	.....	.....	.....	653	0	653	28
27	0	27	29	0	29	.....	.....	.....	103	0	103	29
388	0	388	505	1	506	.....	.....	.....	1,590	1	1,591	30
151	1	152	170	5	175	1	0	1	671	12	683	31
0	187	187	0	185	185	.....	.....	.....	0	691	691	32
151	188	339	170	190	360	1	0	1	671	703	1,374	33
.....	.....	.....	.....	.....	.....	.....	.....	.....	*50*	*135*	*185*	34
.....	.....	.....	.....	.....	.....	2	8	10	79	260	339	35
5	18	23	6	23	29	.....	.....	.....	18	72	90	36
4	23	27	9	17	26	.....	.....	.....	29	82	111	37
29	31	60	57	33	90	.....	.....	.....	135	130	265	38
38	72	110	72	73	145	2	8	10	261	544	805	39
0	*32*	*32*	*0*	*80*	*80*	.....	.....	.....	*0*	*218*	*218*	40
0	0	0	0	0	0	.....	.....	.....	0	3	3	41
0	*32*	*32*	*0*	*80*	*80*	.....	.....	.....	*0*	*221*	*221*	42
.....	.....	.....	.....	.....	.....	6	38	44	6	38	44	43
.....	.....	.....	.....	.....	.....	5	8	13	5	8	13	44
1,475	817	2,292	1,668	1,000	2,668	16	55	71	5,948	3,565	9,513	45
									7,448	3,865	11,313	46
									161	19	180	47
									7,287	3,846	11,133	48

FACULTY SUMMARY

1941-42

Rank	Men	Women	Total
President, Registrar, Deans	11	1	12
Professors	249	8	257
Associate Professors	135	33	168
Assistant Professors	177	51	228
Lecturers (Small part of time)	33	7	40
Research Associates	8	1	9
Clinical Associates (Small part of time)	4	0	4
Instructors	350	137	487
Graduate Assistants and Assistants (Mainly half time)	392	104	496
Research Assistants (Mainly half time)	189	35	224
Totals	1,548	377	1,925

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 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	13	0	13
Associate Professors	2	1	3
Assistant Professors	10	0	10
Instructors	8	2	10
Graduate Assistants and Assistants	1	0	1
Totals	34	3	37

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
Professors	4	0	4
Associate Professors	6	0	6
Assistant Professors	6	3	9
Lecturers	7	0	7
Instructors	38	17	55
Graduate Assistants and Assistants	66	16	82
Research Assistants	38	4	42
Totals	165	40	205

THE ABOVE TABLE DOES NOT INCLUDE emeritus members of the faculty:

Rank	Men	Women	Total
President	1	0	1
Deans	3	0	3
Professors	33	2	35
Associate Professors	1	2	3
Assistant Professors	1	2	3
Totals	39	6	45

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