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THE

UNIVERSITY OF WISCONSIN

CATALOGUE

1913-1914

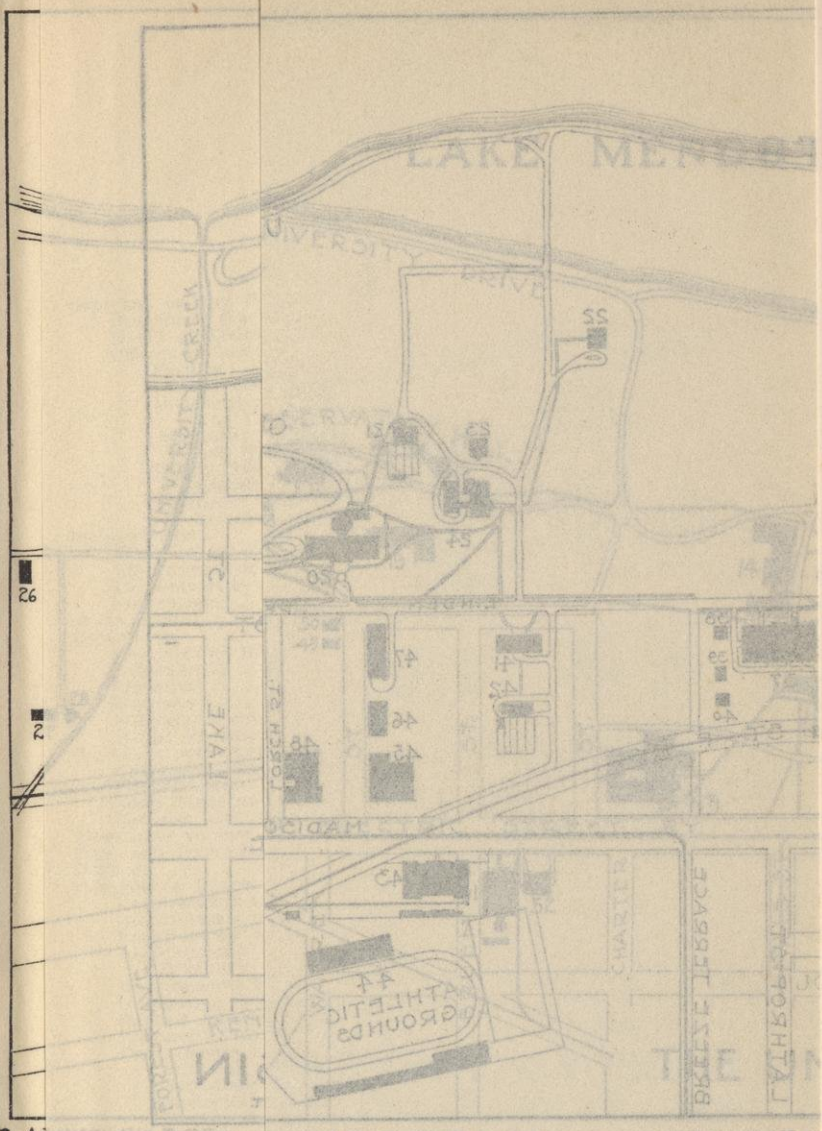
THE UNIVERSITY OF WISCONSIN CATALOGUE

1913–1914

MADISON
MAY
1914

Entered as second class matter June 10, 1898, at the postoffice at Madison Wisconsin, under the act of July 1, 1894

DEMOCRAT PRINTING COMPANY
MADISON, WISCONSIN



2 Administration Building.
5 Agricultural Chemistry Building.
7 Agricultural Engineering Building.
0 Agricultural Hall.
6 Agronomy Building.
3 Alumni Headquarters.
7 Animal Husb. and Live Stock Hall.
4 Athletic Field—Camp Randall.
7 Barnard Hall.

Horticultural Building.
Hydraulic Lab. and Hall.
Implement Shed.
Infirmary.
Kitchen, University Co
Lathrop Hall.
Law Building.
Mining Engineering Lab.
Model Cottage.

y Machinery Laboratory.
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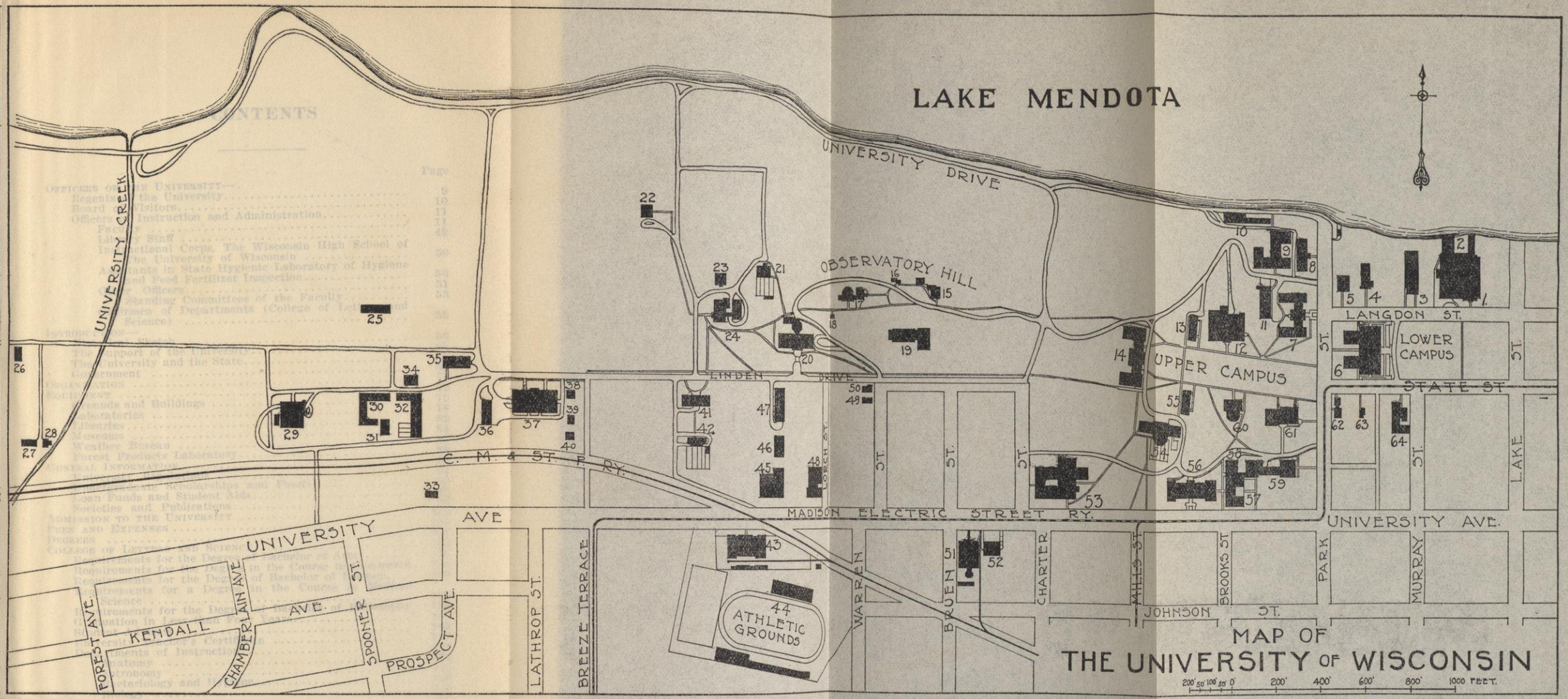
nnasium and Armory with Annex.
Hog Barns.
ne Econ. and Extension Div. Bldg.
ne Barn.



2 Administration Building.
5 Agricultural Chemistry Building.
7 Agricultural Engineering Building.
0 Agricultural Hall.
6 Agronomy Building.
3 Alumni Headquarters.
7 Animal Husb. and Live Stock Pavilion.
4 Athletic Field—Camp Randall.
7 Barnard Hall.
54 Biology Building.
2 Boat Houses.
51 Central Heating Station.
50 Chadbourne Hall.
8 Chemical Engineering Building.
53 Chemistry Building.
4 Clinical Building.
29 Dairy Barn.
24 Dairy Building—Hiram Smith Hall.
23 Dairy Machinery Laboratory.
12 Engineering Building.
9 Engineering Laboratories.
39 Farm Dormitory.
43 Forest Products Laboratory.
1 Gymnasium and Armory with Annex.
25, 27, 32 Hog Barns.
19 Home Econ. and Extension Div. Bldg.
35 Horse Barn.
41 Horticultural Building.
10 Hydraulic Lab. and Pump House.
34 Implement Shed.
49 Infirmary.
58 Kitchen, University Commons.
56 Lathrop Hall.
60 Law Building.
11 Mining Engineering Laboratory.
50 Model Cottage.
61 Music Hall.
13 North Hall.
18 Observatory, Solar.
16 Observatory, Student.
17 Observatory, Washburn.
42 Potting House.
33 Poultry House.
22 Residence of Dean of Agriculture.
40 Residence of Farm Superintendent.
5 Residence of President.
38 Residence of Stock Superintendent.
15 Residence of Director of Washb. Obs.
7 Science Hall.
52 Service Building.
28 Serum Plant.
30 Sheep Barn.
21 Soils-Physics Building.
6 State Historical Library.
55 South Hall.
31 Stock Auditorium.
26 Tobacco Shed.
64 University Club.
14 University Hall.
36 Wagon Shed.
48 Wisconsin High School.
3 Y. M. C. A. Building.

MAP OF THE UNIVERSITY OF WISCONSIN

65	Administration Building.	54	Biology Building.	23	Dairy Machinery Laboratory.
43	Agricultural Chemistry Building.	2	Boat Houses.	12	Engineering Building.
67	Agricultural Engineering Building.	51	Central Heating Station.	9	Engineering Laboratory.
32	Agricultural Hall.	55	Chadbourne Hall.	39	Farm Dormitory.
66	Agronomy Building.	8	Chemical Engineering Building.	45	Forest Products Laboratory.
60	Alumni Headquarters.	53	Chemistry Building.	1	Gymnasium and Armory with Annex.
37	Animal Diseases and Live Stock Pavilion.	4	Clinical Building.	22, 27	Horse Barns.
44	Athletic Field—Camp Randall.	29	Dairy Barn.	13	Horse Exercising Barn.
57	Harvard Hall.	24	Dairy Building—Hiram Smith Hall.	33	Horse Barn.

3	Lathrop Hall.	52	Physical Laboratory.	25	Service Building.
59	Law Building.	56	Physics Building.	26	Service Building.
61	Library.	58	Power Plant.	28	Service Building.
62	Library Annex.	64	Practice House.	31	Service Building.
63	Library Annex.	30	Pump House.	34	Service Building.
50	Library Annex.	35	Service Building.	36	Service Building.
48	Library Annex.	38	Service Building.	40	Service Building.
49	Library Annex.	41	Service Building.	42	Service Building.
46	Library Annex.	47	Service Building.	7	Service Building.
10	Main Building.	14	Service Building.	16	Service Building.
11	Music Hall.	17	Service Building.	18	Service Building.
19	Observatory.	20	Service Building.	21	Service Building.
5	Observatory Grounds.	6	Service Building.		
15	Observatory Weather Station.				

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1914

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SEPTEMBER.						
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OCTOBER.						
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NOVEMBER.						
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CALENDAR

1913		
Sept. 22–23–24	Mon.–Tu.–Wed.	Registration days.
Sept. 22–23	Mon.–Tu.	Examinations for admission.
Sept. 25	Thursday	Lectures and recitations begin.
Nov. 27	Thursday	Thanksgiving Day: legal holiday.
Dec. 23	Tuesday (Noon)	Christmas recess begins.
1914		
Jan. 6	Tues. (8 a. m.)	Exercises resumed.
Jan. 26–Feb. 4	Mon.–Wed.	Final examinations, first semester.
Feb. 5–6	Thur.–Fri.	Registration days.
Feb. 9	Monday	Lectures and recitations begin.
Feb. 23	Monday	Washington's birthday: legal holiday.
April 9–13	Thur.–Mon.	Easter recess.
May 30	Saturday	Memorial Day: legal holiday.
June 6–12	Sat.–Fri.	Final examinations, second semester.
June 11–12	Thur.–Fri.	Examinations for admission.
June 14–17	Sun.–Wed.	Commencement week.

Commencement Week

June 14	Sunday	Baccalaureate address.
June 15	Monday	Class Day exercises.
June 16	Tuesday	Alumni Day.
June 17	Wednesday	Commencement Day.

Summer Session

June 22	Monday	Summer session opens.
July 31	Friday	Summer session closes.

THE ACADEMIC YEAR 1914--1915

1914

Sept. 21–22–23	Mon.–Tu.–Wed.	Registration days.
Sept. 21–22	Mon.–Tu.	Examinations for admission.
Sept. 24	Thursday	Lectures and recitations begin.
Nov. 26	Thursday	Thanksgiving Day: legal holiday.
Dec. 22	Tues. (Noon)	Christmas recess begins.

1915

Jan. 5	Tues. (8 a. m.)	Exercises resumed.
Jan. 25–Feb. 3	Mon.–Wed.	Final examinations, first semester.
Feb. 4–5	Thur.–Fri.	Registration days.
Feb. 8	Monday	Lectures and recitations begin.
Feb. 22	Monday	Washington's birthday: legal holiday.
April 1–5	Thur.–Mon.	Easter recess.
May 31	Monday	Memorial Day: legal holiday.
June 5–11	Sat.–Fri.	Final examinations, second semester.
June 10–11	Thur.–Fri.	Examinations for admission.
June 13–16	Sun.–Wed.	Commencement week.

THE REGENTS

CHARLES R. VAN HISE, *President of the University, Ex-Officio.*
CHARLES P. CARY, *State Superintendent of Public Instruction, Ex-Officio.*

	TERM EXPIRES
State-at-Large—GILBERT E. SEAMAN, Milwaukee	1919
State-at-Large—MRS. FLORENCE G. BUCKSTAFF, Oshkosh	1917
First District—A. J. HORLICK, Racine	1919
Second District—F. W. A. NOTZ, Watertown	1918
Third District—E. M. MCMAHON, Madison	1919
Fourth District—THEODORE M. HAMMOND, Wauwatosa	1916
Fifth District—JAMES F. TROTTMAN, Milwaukee	1915
Sixth District—MISS ELIZABETH A. WATERS, Fond du Lac	1915
Seventh District—D. O. MAHONEY, Viroqua	1920
Eighth District—GRANVILLE D. JONES, Wausau	1916
Ninth District—ORLANDO E. CLARK, Appleton	1918
Tenth District—BEN F. FAAST, Eau Claire	1920
Eleventh District—A. P. NELSON, Grantsburg	1917

Officers of the Regents

JAMES F. TROTTMAN, *President.*
A. P. NELSON, *Vice President.*
HENRY JOHNSON, *State Treasurer, ex-officio Treasurer.*
H. C. BUMPUS, *Business Manager.*
M. E. MCCAFFREY, *Secretary.*
G. L. GILBERT, *Bursar.*
C. W. FARLIN, *Purchasing Agent.*

THE BOARD OF VISITORS

	TERM EXPIRES
Appointed by Regents, 1913:	
*Mrs. Mary D. Bradford, Kenosha	1914
George F. Hambrecht, Grand Rapids	1915
Ernst Copeland, Milwaukee	1916
John E. McConnell, La Crosse	1917
Appointed by Alumni, 1913:	
Mrs. Lynn S. Pease, Wauwatosa	1914
Claire B. Bird, Wausau	1915
Richard Lloyd-Jones, Madison	1916
Rev. C. F. Niles, Menomonie	1917
Appointed by Governor, 1913:	
W. A. Titus, Fond du Lac	1914
Mrs. Charles N. Morris, Milwaukee	1915
E. B. Belden, Racine	1916
L. J. Stair, Brodhead	1917

*Resigned, March 4, 1914.

THE OFFICERS OF INSTRUCTION AND ADMINISTRATION

FACULTY

The abbreviations in italic letters indicate the University buildings in which offices are located: *A. C. B.*, Agricultural Chemistry Building; *Adm. B.*, Administration Building; *A. E. B.*, Agricultural Engineering Building; *Agron. B.*, Agronomy Building; *A. H.*, Agricultural Hall; *B. B.*, Biology Building; *B. H.*, Barnard Hall; *C. B.*, Chemistry Building; *C. E. B.*, Chemical Engineering Building; *C. H.*, Chadbourne Hall; *Clin. B.*, Clinical Building; *E. B.*, Engineering Building; *Elec. Lab.*, Electrical Laboratory; *F. P. L.*, Forest Products Laboratory; *Gym.*, Gymnasium; *H. B.*, Horticultural Building; *H. E. B.*, Home Economics Building—East end, Home Economics and University Extension Building; *H. S. H.*, Hiram Smith Hall; *Hyd. Lab.*, Hydraulic Laboratory; *L. B.*, Law Building; *Lib.*, Library; *M. H.*, Music Hall; *Min. B.*, Mining Building; *M. S.*, Machine Shops; *N. H.*, North Hall; *S. B.*, Soils Building; *Sc. H.*, Science Hall; *S. H.*, South Hall; *U. E. B.*, University Extension Building—West end, Home Economics and University Extension Building; *U. H.*, University Hall.

VAN HISE, CHARLES RICHARD, Ph. D., LL. D., President of the University. *U. H.* 158. — 772 Langdon

PARKINSON, JOHN BARBER, M. A., Vice President and Professor of Constitutional and International Law. *Emeritus.* — 516 Wisconsin Ave.

ADAMS, THOMAS SEWALL, Ph. D., Professor of Political Economy. *Capitol.* — 14 Prospect Ave.

ALEXANDER, ALEXANDER SEPTIMUS, F. H. A. S., M. D. C., Professor of Veterinary Science. *A. H.* 4. — 811 Spaight

*ALLEN, CHARLES ELMER, Ph. D., Professor of Botany. *B. B.* 109.

†ALLEN, KATHERINE, Ph. D., Assistant Professor of Latin. *U. H.* 266. — 228 Langdon

---

* On leave of absence, academic year, 1913–14.
† On leave of absence, second semester, 1913–14.

ALVORD, KATHERINE SPRAGUE, M. A., Mistress of Chadbourne Hall. Chadbourne

AMES, JESSE H., Ph. B., District Representative, Extension Division. River Falls

ANDERSON, LEWIS ALBERT, B. L., Lecturer in Political Economy. *Capitol.* 170 Summit Ave.

BABCOCK, STEPHEN MOULTON, Ph. D., LL. D., Professor of Agricultural Chemistry. *Emeritus. A. C. B.* 204. 432 Lake

BALLANTINE, HENRY WINTHROP, B. A., LL. B., Professor of Law. *L. B.* 143 Prospect Ave.

BARDEEN, CHARLES RUSSELL, B. A., M. D., Dean of the Medical School. Professor of Anatomy. *Clin. B.* 23 Mendota Ct.

BARROWS, EDWARD MORLEY, B. A., District Representative, Extension Division. *Manhattan Bldg.* 303. 133 2d St., Milwaukee

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* On leave of absence, second semester, 1913–14.

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FULLER, JAMES GARFIELD, B. S., Associate Professor of Animal Husbandry. *A. H.* 208A. 1724 Hoyt

GAGE, OTIS AMSDEN, Ph. D., Assistant Professor of Physics. *Sc. H.* 103. 121 W. Gilman

GAY, LUCY MARIA, B. L., Assistant Professor of Romance Languages. *U. H.* 304. 216 N. Pinckney

GIESE, WILLIAM FREDERIC, M. A., Associate Professor of Romance Languages. *U. H.* 304. 2006 Jefferson

GILBERT, EDWARD MARTINIUS, Ph. B., Assistant Professor of Botany. *B. B.* 308. 109 Spooner

GILLIN, JOHN LEWIS, Ph. D., Associate Professor of Sociology. Secretary, Department of General Information and Welfare. *U. E. B.* 204. 209 Highland Ave.

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* On leave of absence, academic year, 1913–14.

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HALPIN, JAMES GARFIELD, B. S., Associate Professor of Poultry Husbandry. *A. C. B.* 218. R. F. D. No. 7

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HESS, RALPH HENRY, Ph. D., Assistant Professor of Political Economy. *N. H.* 80. 237 Langdon

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HUBBARD, FRANK GAYLORD, Ph. D., Professor of English. *U. H.* 354. 409 N. Murray

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* Died January 25, 1914.
† On leave of absence second semester, 1913–14.

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* Resigned January 21, 1914.
† On leave of absence, second semester, 1913–14.

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MCGILVARY, EVANDER BRADLEY, Ph. D., Professor of Philosophy. *U. H.* 108. 1902 Arlington Pl.

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MACK, JOHN GIVAN DAVIS, M. E., Professor of Machine Design. *E. B.* 225. 110 E. Johnson

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MASON, MAX, Ph. D., Professor of Mathematical Physics. *Sc. H.* 11. 152 W. Gorham

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* Appointed January 1, 1914.
* Appointed January 21, 1914.

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* On leave of absence, academic year, 1913–14.

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RICHARDS, HARRY SANGER, LL. B., LL. D., Dean of the Law School. Professor of Law. *L. B.* 640 Frances

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* On leave of absence, academic year 1913–14.
† On leave of absence, second semester, 1913–14.
‡ Died January 8, 1914.

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SELLERY, GEORGE CLARKE, Ph. D., Professor of History. *U. H.* 209. 2021 Van Hise Ave.

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* On leave of absence, first semester, 1913–14.

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† Died October 22, 1913.
‡ On leave of absence, second semester, 1913–14.

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† On leave of absence, second semester, 1913–14.

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* Appointed December 3, 1913.

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† Resigned December 3, 1913.
‡ Appointed March 4, 1914.
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*Appointed December 27, 1913.
†Resigned March 4, 1914.

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* Appointed January 31, 1914.
† Resigned January 1, 1914.

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* Appointed January 21, 1914.
† Resigned March 4, 1914.

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* Appointed December 3, 1913.
† Appointed January 21, 1914.

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† Appointed December 27, 1913.
‡ Appointed January 31, 1914.

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Graduate School—Professor Comstock, chairman; Professors L. R. Jones, Kahlenberg, Sellery, and Slaughter.

Honorary Degrees—Professor C. F. Smith, chairman; the deans and the director of the graduate school, *ex-officio;* Professors McGilvray, Slichter, and H. A. Smith.

Lathrop Hall—Mrs. Mathews, chairman; Miss Campbell, secretary; Professors Fish, Marlatt, Trilling, and Miss Alvord.

Lecture—Professor Jastrow, chairman; Professor Lathrop, secretary; Dean Birge, Professors Commons, Mendenhall, J. G. Moore, and Westermann.

Library—President Van Hise, Professor W. M. Smith, *ex-officio.* (Elected) Professors Bardeen, Fiske, Holden, W. A. Scott, Sharp, H. A. Smith, Young.

Loans and Undergraduate Scholarships—Professor Olson, chairman; Professors Gilman, Millar, Otto, Sterling, and Miss Alvord.

Press Bulletin—Mr. Holman.

Public Functions—Professor Olson, chairman; Professors Goodnight, Kowalke, W. U. Moore, and Sanders.

Regent-Faculty Conference Committee—*Ex-officio*, the President of the University; Regents: Trottman, Buckstaff, Cary, Jones, Mahoney, Martin, Seaman; Faculty: Birge, Bunting, Comstock, Disque, Farrington, Foerster, Goodnight, Hohlfeld, Mack, Mrs. Mathews, Munro, Reber, Roe, and H. L. Smith.

Rooms and Time Tables—Professor Haertel, chairman; Professors Benkendorf, Coerne, Cool, Denniston, C. A. Fuller, Keown, Steidtmann, Walton, and Miss Campbell.

Student Interests—Professor Roe, chairman; Mrs. Mathews, *ex-officio;* Professor Cerf, secretary; Professors J. G. Fuller, Lloyd-Jones, Mack, Root. (The director of physical education, the commandant, the chairman of the course in journalism, the university medical adviser, the director of the school of music, and the chairman of the department of public speaking, *ex-officio*, whenever their respective fields are concerned).

Training of Teachers—Professor Elliott, chairman; Professors Bassett, Birge, Brandt, Crawshaw, Guyer, W. W. Hart, Hatch, Lenher, H. L. Miller, O'Shea, Paxson, Purin, and Sharp.

University Hygiene—Professor Ravenel, chairman; Professors Elsom, Meanwell, Thorkelson, Dr. Sarah Morris.

CHAIRMEN OF DEPARTMENTS

College of Letters and Science

Anatomy,	Professor Bardeen.
Astronomy,	Professor Comstock.
Bacteriology,	Professor Ravenel.
Botany,	Associate Professor Overton.
Chemistry,	Professor Kahlenberg.
Education,	Professor E. C. Elliott.
English,	Professor Hubbard.
Geology,	Professor Leith.
German,	Professor Hohlfeld.
Greek,	Professor C. F. Smith.
History,	Professor Munro.
Journalism,	Associate Professor Bleyer.
Latin,	Professor Slaughter.
Manual Arts,	Professor Crawshaw.
Mathematics,	Professor Slichter.
Music,	Professor Coerne.
Pathology,	Professor Bunting.
Pharmacology,	Professor Loevenhart.
Pharmacy,	Professor Kremers.
Philosophy,	Professor McGilvary.
Physical Education,	Professor Ehler.
Physics,	Professor Snow.
Physiology,	Professor Eyster.
Political Economy,	Professor Urdahl.
Political Science,	Associate Professor Lloyd-Jones.
Public Speaking,	Associate Professor O'Neill.
Romance Languages,	Professor H. A. Smith.
Scandinavian Languages,	Professor Olson.
Semitic Languages and Hellenistic Greek,	Professor Williams.
Zoology,	Professor Guyer.

THE UNIVERSITY OF WISCONSIN

INTRODUCTION

HISTORICAL SKETCH

The first steps toward the establishment of a university in Wisconsin were taken in 1836, the first year of the territory. The estimated population of the territory at this time was about 22,000, of which probably one-half was in the country west of the Mississippi River which had been included in Wisconsin Territory for the purpose of temporary government. With this sparse pioneer population, it is probable that little thought would have been given to the establishment of a university had it not been the policy of the federal government to set aside a tract of land in each of the new territories for the benefit of a seminary of learning.

No reservation having been made for this purpose in the act under which the territory of Wisconsin was organized, Henry Dodge, the first territorial governor, in his first message, recommended that congress be asked for the donation of one township of land, to be sold, and the proceeds devoted to the establishment of an academy for the education of youth. In anticipation of such application to congress, the legislature passed an act (approved Dec. 8, 1836) providing for the establishment at Belmont, where the first legislature was then in session, of "a university for the purpose of educating youth, the style, name, and title whereof shall be the Wisconsin University." The act provided for the government of the University by twenty-one trustees, named in the act, of whom the governor was to be one. Nothing further was done at this time, however.

Madison had been selected as the capital of the territory at the first session of the legislature, but pending the erection of the capitol buildings, the second session was held at Burlington, now in Iowa. At this session, the legislature, recognizing that Madison, by its location and natural beauties, was admirably fitted to be the site of the proposed university, passed an act (approved Jan. 19, 1838) which superseded the act of 1836, and which provided that there should be established "at or near Madison, the seat of government, a university for the purpose of educating youth, the name whereof shall be The University of the Territory of Wisconsin." The government was to be by a board of twenty-one visitors, named in the act and including the governor and other territorial officers. Immediately upon the passage of this act, the legislature adopted a resolution directing the territorial delegate in congress "to ask of the Congress of the United States an appropriation in money of $20,000 for the erection of the buildings of the said university and also to appropriate two townships of vacant land for its endowment." By act approved June 12, 1839, congress authorized the secretary of the treasury "to set apart and reserve from sale out of the public land within the territory of Wisconsin, not exceeding two townships for the use and support of a university within said territory." Congress did not, however, make the appropriation of money which had been asked.

The population of the territory was growing rapidly. By act of congress of June 12, 1838, the country west of the Mississippi River was organized into the separate territory of Iowa and set off from Wisconsin on July 4 of that year. This left Wisconsin with the Mississippi as its western boundary and an estimated population of about 18,000. Congress having failed to appropriate money for the university buildings and the territorial legislature not feeling justified in making such expenditure, the establishment of the University was delayed until after the admission of Wisconsin into the Union. Meanwhile the board of visitors kept up an organization, and the legislature provided for the location of the two townships or 46,080 acres of university lands.

Wisconsin was admitted to statehood on May 29, 1848, with a population of about 250,000. In accordance with the pro-

visions of the new constitution, the legislature by act, approved July 26, 1848, provided that there should be established "at or near the village of Madison, an institution of learning under the name and style of the University of Wisconsin:" the government to be by a board of regents to be elected by the legislature. It was under this act that the University was organized.

In accordance with the provisions of the enabling act of Aug. 6, 1846, the title to the university lands vested in the state upon its admission. The constitution provided for the sale of these lands after their appraisal, subject only to the qualification that they might be withheld from sale when the commissioners should deem it expedient. (Sec. 8, Art. 10). The proceeds of these lands were to constitute the university fund, from the income of which the University was to be supported.

The regents held their first meeting in October, 1848. The schools of the new state not being sufficiently advanced to fit for entrance to the University, a preparatory department was provided for to open in February, 1849, under the charge of John W. Sterling, a graduate of the University of New Jersey (Princeton). John H. Lathrop, a graduate and afterwards a tutor of Yale College, was called from the presidency of the University of Missouri to become Chancellor of the University. He was formerly inaugurated January 16, 1850. College Hill was early acquired as a site for the University. It was partially included in the purchase of the Vanderpool tract of 157 acres; the remainder was secured by exchange and purchase. About 50 acres, including College Hill, was destined for the site of the University. The remainder of the property was laid out into 174 village lots and 12 five acre tracts. The plans for the University contemplated a main edifice on the crest of the hill, an avenue 240 feet wide from the main edifice to the east line of the grounds, and four dormitories lower down the hill, two on each side of the avenue. North Hall, the first university building, was opened in the fall of 1851, having been constructed from a loan authorized by the legislature.

As it was the evident expectation at this time that the University was to depend solely upon its fund for its income, the regents were desirous of obtaining a maximum fund. The

first appraisal of university lands was found to be under $3.00 an acre. At the request of the regents, the legislature, in 1850, set a minimum price of $10 an acre upon the university lands, reducing this, however, to $7.00 an acre in 1851. It had been expected that the fund would grow rapidly. On the contrary, the sales of university lands almost ceased, and the fund remained stationary at about $25,000. The income from this fund was only sufficient to pay the interest on the loan, and the University was seriously embarrassed. It became necessary to sell the town lots and the five acre tracts in order to provide running expenses. The lots produced a total of some $12,500, or about $7,500 more than the original cost of the whole property. Meanwhile, as it was imperative that an increased revenue be provided for the University, the legislature in 1852 provided for the reappraisal of the university lands with a minimum valuation of $3.00 an acre. Though not willing to make a direct appropriation for the benefit of the University, the state legislature took steps which resulted in the University securing a second land grant. The federal government had granted to the state 72 sections of salt springs lands. No salt springs were to be found in Wisconsin, however, and as early as 1848 the legislature had requested congress to permit the selection of an equivalent amount of other lands. Congress had taken no action in the matter. By joint resolution of January 19, 1851, the legislature renewed its request but asked that the grant be made for the benefit of the University. Congress complied with this request by act of December 15, 1854, and provided that the land so granted "be sold in such manner as the legislature may direct for the benefit and in aid of the University."

The wording of this grant suggests that it was intended to be a measure of relief to the University. Had it not been for the request of the legislature, congress would undoubtedly have made this grant to the state, for its own use. This grant may, therefore, be considered as the first important gift, though indirectly accomplished, of the State to the University.

The revaluation of the university lands on the lower basis, stimulated their sale and by the end of the year 1853 the university fund had increased to over $100,000. The regents decided upon the erection of the second dormitory, "which should be plain and substantially constructed, with a taste

too severe to sacrifice utility to ornament." The legislature authorized the loan of $15,000 for this purpose and South Hall was built, being completed in 1855.

On July 26, 1854, the University graduated its first class, consisting of Levi Booth and Charles T. Wakely. At this time the faculty consisted of Chancellor Lathrop, occupying the chair of ethics, civil polity, and political economy; Professor Sterling, who taught mathematics, natural philosophy, and astronomy, Obadiah M. Conover, professor of ancient languages and literature, and Stephen H. Carpenter, tutor. The attendance was forty-one, exclusive of fifteen students in the preparatory course.

The sales of university lands progressed rapidly and by the close of 1854 the fund amounted to $161,000 with only 6,000 acres of the first land grant remaining unsold. The regents announced in their report for this year that "the institution is now emerging from the embarrassments attendant on the period of converting a land endowment into a productive fund and erecting the buildings." By the end of 1856 the fund had grown to $310,000, most of the second grant having been sold. The increased attendance now made the erection of the main building necessary. For this purpose the legislature authorized a loan in 1857, from the principal of the university fund. Almost from the outset of this undertaking the University experienced serious embarrassment. The panic of 1857 swept over the country. Difficulty was experienced in raising money for the completion of the building and the regents were forced to borrow at the high rate of ten per cent. To add to its difficulties, thousands of acres of university lands were forfeited by the purchasers, thus reducing the fund and greatly impairing the income of the University. The panic was followed by the war and the forfeiture of lands continued. In the early sixties it became necessary to look forward to the repayment, in annual installments, of the principal of the building loans, which aggregated about $100,000. Salaries were cut and pinching economy instituted, but it was evident that it would be impossible to meet interest payments and the payments on account of the principal of the loans, and at the same time maintain the University in any degree of efficiency. The regents make the following significant statement in their report for the year end-

ing September 30, 1861: "It is submitted that the policy adopted by the early movers in the organization of the University and enjoined by the provisions of its charter, of providing grounds, buildings, and the entire outlay of preparation for a university, from the income of its endowment, *has signally failed.*" As a measure of relief the legislature by Chap. 208, laws of 1862, cancelled the indebtedness of the University to its fund, incurred for the building of Main Hall, and authorized the payment from the principal of the fund of all other indebtedness incurred for buildings. While the effect of this was to reduce the permanent fund by the amount of the indebtedness thus cancelled and paid off (about $100,000) it left the income of the balance of the fund freed from the obligation of repaying the principal of the loans. The effect of this act was equivalent to the University having constructed its buildings from the capital of its fund instead of from the income.

The University grew rapidly after the war and again its income became insufficient. It was pointed out that, whereas the constitution provided that the university fund was to be perpetual, the legislature had permitted the fund to become impaired by providing for the payment of the indebtedness of the University for buildings from the principal of the fund. It was figured that the annual income thus lost to the University was $7,333.76. The legislature, by Chap. 2, laws of 1867, authorized an annual tax of this amount to be appropriated to the university fund income. Thus the state was reluctantly, but nevertheless surely, coming to the support of the University. The principle of direct appropriations by the state for the support of the University was acknowledged a few years later in an appropriation for the building of "Ladies Hall" and an increase of the annual tax for the University to $10,000. Since this the State has given generous support to the University.

The University had been criticised because of its preparatory department, and because of the alleged narrowness of the curriculum. It was demanded that "a more distinct bias should be given to its instructions in the direction of the several arts and avocations as they exist among men." In 1858, as the outcome of these demands, the preparatory department was restricted in its scope, and the University was reorganized into a department of science, literature, and the arts, consisting of

six schools: philosophy, philology, natural science, civil and mechanical engineering, agriculture, and polity.

Chancellor Lathrop was succeeded in 1859 by Henry Barnard, a graduate of Yale, prominent in the reorganization of the schools of Connecticut and Rhode Island, founder of the *American Journal of Education*, and (1867) first national Commissioner of Education. His policy centered in elevating the public school system of the state as a basis for university growth, but ill health caused his resignation in 1860.

Under the *ad interim* direction of Professor Sterling, the University remained without a chancellor until 1867. The Civil War took a large proportion of the students into the field, and no commencement was held in 1864, all but one of the senior class having joined the army.

The close of the war brought a new inspiration and growth to the University. The returning soldiers took up their studies, and by 1870 the University had nearly 500 students. A reorganization was effected in 1866, and Dr. Paul A. Chadbourne, a graduate of Williams College, was called to the presidency. Among the important developments of this period was the founding of the College of Law, the maturing of plans providing for co-education, and the institution of the agricultural department as an integral part of the University. This constituted a radical departure from the policy of the other states of the middle west. In many instances agricultural and engineering colleges have been founded apart from the state university. The rapid growth of The University of Wisconsin and its hold upon the people have been in a considerable measure due to the fact that it contains within its organization the colleges which appeal to the farmer and the artisan as well as to the business and professional classes of the state.

It was through the efforts of President Chadbourne that an appropriation of $50,000 was secured from the legislature of 1870 for the erection of a separate building for the women students of the University. This building, now known as Chadbourne Hall, was constructed during the following year, when Professor Sterling as Vice-President administered the University, and was first occupied in the fall of 1871.

President Twombly came to the University at the beginning of the academic year 1871–72. He was a graduate of

Wesleyan University of Middletown, Connecticut, one of the overseers of Harvard College, and a founder of Boston University.

The reorganization of 1866 had provided for co-education, but for some years the work of the women was kept separate from that of the men. It was significant, however, of an increasing recognition of the importance of the education of women that the first building appropriation the legislature made to the University was for the women's building, and only a few years elapsed when complete co-education was adopted Perhaps the most important development of the period of Dr. Twombly's presidency was the provision made by the legislature for a state tax of $10,000 a year to form a part of the University income. In thus adopting the policy of a special annual tax for the support of the University, the legislature made the formal explanation in the preamble to the law, that the policy of disposing of the land grants by congress at a low price, in order to attract actual settlers, had prevented the increase of the productive funds, and that it was the duty of the State to see to it that the University should not suffer. A system of free tuition to the graduates of the high schools of the State who passed the University entrance requirements, was also adopted at this time. This step was the beginning of the elimination of the preparatory department of the University. By resting its growth upon the high schools of the State and receiving an annual income from the taxpayers, the University merged itself completely with the educational life of the State, and, in the long run, felt the benefits of this change.

With the coming of President Bascom from Williams College, in 1874, the University entered upon a new life. The finances of the institution were put on a better basis by the legislative grant of a tenth of a mill tax, which afforded increasing revenue as the wealth of the State increased. Large specific grants for new buildings, including Assembly Hall, Science Hall, the Chemical Building, and the Machine Shop, were made in the same period. The Farmer's Institutes and the Short Course in Agriculture brought the University into closer touch with the farmers of the State. Under Dr. Bascom's presidency the preparatory department was abolished, and the University found all the students it could care for

among the graduates of the high schools. At the beginning of his presidency the attendance, excluding the preparatory department was about 300. At its close, thirteen years later, it was but 500; but the University had thoroughly gained the respect of the State.

President Bascom was succeeded by President Chamberlin of the United States Geological Survey, a graduate of Beloit College. He gave the University a strong impulse toward graduate study by the emphasis which he laid on research. Courses of study were increased, the standards of admission raised, and fellowships provided for graduate study. When he resigned, after five years of service, in 1892, the University had doubled its numbers, rising from 500 to 1,000. During his presidency, a new science building was completed, and buildings were erected for the Dairy School and the Law School. In addition, a university boat house was built, and the contracts let for the Armory and Gymnasium, now such a prominent feature of the Lower Campus.

President Adams came to Wisconsin from Cornell, the presidency of which university he had just resigned. Under his administration the University rose from 1,000 students in 1892 to 2,600 in 1901. The beautiful building for the library of the State Historical Society and the University, costing nearly three quarters of a million of dollars, and housing treasures of inestimable value, is the most impressive monument of his presidency. The University developed into a larger life in all directions during these ten years. The increase in the number of graduate students was large and the emphasis upon graduate teaching was distinct. At the close of his presidency there were over one hundred graduate students, while ten years before there were only twenty-two. Athletics had reached their largest development in the same period, and Camp Randall, an athletic field of forty-two acres, was purchased for the University. The University began its summer sessions in 1899, a development which has been very important in increasing the influence of the University.

During the absence of Dr. Adams, caused by illness, and after his resignation, Professor Birge, Dean of the College of Letters and Science, served as Acting President during the three academic years, 1900–1903.

President Charles R. Van Hise, the first alumnus of the University to hold the presidency, was elected in the spring of 1903, and assumed the active duties of the position at the beginning of the succeeding academic year.

THE SUPPORT OF THE UNIVERSITY

The University is supported partly by the income of federal grants, partly by taxation of the people of the State, partly by student fees and to a slight extent by private gifts. There have been seven federal grants, namely: the Two-Township Grant of 1848; the Supplementary Two-Township Grant of 1854; the Morrill Grant of 1862 for the support of studies pertaining to agricultural and mechanic arts; the Hatch Grant of 1887 for the support of agricultural experiment stations, the Supplementary Morrill Grant of 1890, the Adams Act Grant of 1906 and the Nelson Grant of 1907.

Besides numerous and large appropriations for buildings and other specific purposes, the State of Wisconsin has made a number of continuing grants, namely: the one-tenth mill tax of 1876, increased to one-eighth mill in 1883; the additional one-tenth mill tax of 1891; the appropriation for the support of the Observatory in 1887; the appropriation for the support of Farmer's Institutes in 1885, increased in 1887; the appropriation for the College of Engineering, in 1889, of one per cent. of the railroad license tax; and the additional one-fifth mill grant of 1897. The legislature of 1899 consolidated the various mill taxes, specified above, and the grant of one per cent. of the railroad licenses into a specific continuous annual grant of an amount equal to the annual revenue from these various grants. This appropriation was increased by the legislature of 1901 and again by the legislature of 1903.

In 1905 the laws making specific annual appropriations for the support of the University were repealed, and a two-seventh of a mill tax was imposed for current expenses. This change resulted in a considerable increase in the income of the University. Moreover, an appropriation was made, extending through three years, for permanent improvements, including buildings for educational purposes, repairs and improvements, apparatus and books. The legislature of 1907 continued this appropriation, and made an appropriation of

$200,000 for two years for permanent improvements, from which they have built a woman's building and a live stock pavilion. The authority to establish a medical school was granted, and a continuing appropriation was made to establish a university extension division. The legislature of 1909 increased the appropriation for support by $100,000 per annum for the biennial period, increased the appropriation for university extension and made an appropriation for permanent improvements so as to provide for a biology building, a horticultural building, a woman's dormitory, a wing to the engineering building, a wing to the dairy building, and the completion of the central heating plant. In addition to this $50,000 per annum was appropriated for two years for books, apparatus, furniture, and equipment.

The legislature of 1911, in lieu of the two sevenths of a mill tax plus $100,000 per annum for support, substituted a three-eighths of a mill tax, the change making a considerable increase in income. The appropriation for general extension was increased to $100,000 for the current year and to $125,000 for the year 1912—13. The appropriation for agricultural extension was increased to $40,000 a year for two years. The appropriation for permanent improvements and for books, apparatus, furniture, and equipment, was increased to $300,000 a year for two years. In addition an appropriation of $75,000 a year for two years was made for a woman's dormitory. From this permanent improvement fund the following buildings have been constructed: Barnard Hall, additional wings to the general chemistry building, a combined home economics and extension building, and an agricultural chemistry building. Also the Wisconsin high school building, to complete the development of the course for the training of teachers, is under construction.

The legislature also appropriated $162,000 to add the north wing to the historical library building; this is of much consequence to the University, since in this wing are to be located the university bookstacks. Another appropriation by the legislature of 1911 was that of $47,000 per annum for five years for the purchase of land. With this money about 185 acres of land have been acquired, so that the university grounds, with the exception of one tract of about 158 acres, extend continuously from Park Street to Eagle Heights, a dis-

tance of more than three miles along the shore of Lake Mendota. With reference to the growth of the university through centuries to come, this land is of very great importance.

Another important legislative action was the making of the state library school, established some years ago, a part of the University so that the same became the University Library School in the College of Letters and Science.

The legislature of 1913 increased the appropriation for support of the University, for work at Madison and for extension and also for constructional work. The more important educational buildings to be provided for by the constructional fund are, a physics building, a liberal arts building to be added to University Hall, a wing to the Agricultural Soils building, an additional shop building, and the completion of the Wisconsin High School. An appropriation was made for a commons and union for men and for men's dormitories. Thus the legislature has accepted the policy urged for ten years of providing for living quarters and the social needs of the men, precisely as for the women.

Of the gifts that have come to the University from individuals before the present year, that of Dane County for the purchase of lands for the University farm, that of the late Governor C. C. Washburn for the founding of the Washburn Observatory, that of the late Judge Mortimer M. Jackson for the establishment of the Mortimer M. Jackson Professorship of Law, that of the late Dr. C. K. Adams and Mrs. Adams for the foundation of fellowships, and that of Mrs. Fannie P. Lewis for the foundation of scholarships for women are important.

On August 27, 1908, Colonel William F. Vilas, who for fifty years has been deeply interested in the University as student, as regent, and as citizen, died. His entire estate was bequeathed to the University, the income, however, in part or in whole if need be to go to his wife and daughter during their lives. Half of the income of the estate is to be used for the support of research professorships, fellowships, and scholarships and the remainder to increase the principal. While it will be many years before the University gains financial assistance from this bequest, its influence for the development of the University along the highest lines cannot but be felt at once.

The citizens and alumni of the state have contributed somewhat more than $30,000 for the Carl Schurz Memorial Professorship. This gift is of special significance, since it is the first endowment of a chair from private sources through general interest in the University. The first occupant of this chair is the eminent German scholar, Eugen Kuehnemann, professor in the University of Breslau.

THE UNIVERSITY AND THE STATE

The University of Wisconsin is the culmination of the free educational system of the State. In the educational policy of the State, the University sustains a similar relation to the high schools that the high schools sustain to the primary and grammar schools. As those who have passed through the grammar grades may freely avail themselves of the high schools, so those who have completed with credit a high school course may advance to the opportunities offered by the University. It is not expected that all pupils who complete the grammar grades will advance to the high school; nor is it expected that all who complete a high school course will go forward to the University. But the school system of the State has been so arranged as to make the passage from one grade to another as easy and natural as possible, in order to afford every encouragement to higher education. The State through the University undertakes to furnish instruction in the various branches requisite for a liberal education, in the technical branches of engineering, law, agriculture, medicine, pharmacy, chemistry, commerce, journalism, home economics, and music. It also aims to encourage research work in all departments, to produce creative scholars, and so do its part in the enlargement of the domain of knowledge. Finally the University through an extension division organized upon the broadest basis is widely assisting the people of the State in the assimilation of the extraordinary advance in knowledge which has been characteristic of the past two score years. Thus it is the general policy of the institution to foster the educational interests of the State, broadly and generously interpreted at the University. By prescribing a large number of studies during the first two years of undergraduate work, and by leaving all, or a large part, of the work of the last two years to the free

selection of the student, under a definite system, the University endeavors to give a wise measure of direction, leaving at the same time sufficient room for choice to encourage individual adaptation and special development. The graduate work is, of course, wholly elective.

GOVERNMENT

The government of the institution rests upon the inherent obligations of students to the University and to the State. The University is maintained at the public expense for the public good. Those who participate in its benefits are expected, as a matter of honor, not only to fulfill the obligations of loyal members of the institution, of the community, and of the commonwealth, but actively to aid in promoting intellectual and moral interests. Every student owes to the public, in the form of superior usefulness to it, both while in the institution and afterwards, a full equivalent for its expenditure in his behalf.

The University avoids all that is sectarian or partisan; but it endeavors to extend its sympathy and influence to whatever contributes to good citizenship and high character.

ORGANIZATION

The University embraces—

- The College of Letters and Science.
- The College of Engineering.
- The Law School.
- The College of Agriculture.
- The Medical School.
- The Graduate School.
- The Extension Division.
- The Summer Session.

The College of Letters and Science embraces—

- General Courses in Liberal Arts.
- Special Courses, which include:
  - Chemistry.
  - Commerce.
  - Journalism.
  - Library Training Courses.
  - Music.
  - Pharmacy.
  - Training of Teachers.

The College of Engineering embraces—

- The Civil Engineering Course.
- The Mechanical Engineering Course.
- The Electrical Engineering Course.
- The Chemical Engineering Course.
- The Mining Engineering Course.

The College of Agriculture embraces—

- The Experiment Station.
- The Long Course in Agriculture.
- The Middle Course in Agriculture.
- The Short Course in Agriculture.
- The Dairy Course.
- The Farmers' Institutes.
- Home Economics.
- The Forest Rangers' Course.

The Law School embraces—
A Three Year Course.

The Medical School embraces—
The First Two Years of a Medical Course.

The Extension Division embraces—
The Department of Instruction by Lectures.
The Department of Correspondence-Study.
The Department of General Information and Welfare.
The Department of Debating and Public Discussion.

The Summer Session embraces—
Courses in the Various Colleges and Schools of the University.

EQUIPMENT

GROUNDS AND BUILDINGS

The University of Wisconsin is located at Madison, the capital of the State. The University grounds comprise 926 acres, being on the south side of Lake Mendota and extending for several miles along the shore. At the eastern end of the grounds the land rises abruptly into two hills. The highest and most easterly of these, University Hill, has an elevation of about 100 feet above the lake and on it are nearly all the buildings of the College of Letters and Science, the College of Engineering, the Law School, and the Medical School. A short distance to the west is Observatory Hill on which are located Washburn Observatory, the Solar Observatory, and the residence of the Director of Astronomy. Just east of University Hill is the lower campus. At the west end of this stands the State Historical Library building in which are housed the libraries of the University and of the State Historical Society. The rest of the lower campus is used for sports and as a parade ground.

Just west of Observatory Hill is a level tract of land which is occupied by the buildings and gardens of the College of Agriculture. Just south of this, across University Avenue, is Camp Randall, the University athletic field, comprising about 42 acres, which was purchased by provision of the legislature of 1893. The Forest Products Laboratory is also located on this tract.

Directly to the west of the grounds of the College of Agriculture is the experimental farm, comprising about 300 acres. Southwest of Eagle Heights, on the Sauk Road, is the "Hill Farm," of about 290 acres, which is used by the College of Agriculture for instructional and research purposes. The most recent acquisitions to the University grounds are the "Olin" and "Raymer" farms which were purchased with funds appropriated by the legislature of 1911. These properties comprise about 156 acres and extend from the west side of the

Park and Pleasure Drive to the west side of Eagle Heights and from Lake Mendota southward an average distance of about half a mile. They will, for the present, be placed under the direction of and utilized for the purposes of the College of Agriculture.

In addition the University owns a number of pieces of property adjacent to the main grounds, some of which are already occupied by buildings while the others will be used as necessity demands.

The buildings of the University that are used for instructional purposes are twenty-six in number. The oldest three of these, North Hall, South Hall, and University Hall, stand on and near the crest of University Hill. As originally erected these buildings were paid for out of the money derived from the sale of lands granted by the United States Government. North Hall, on the north side of the hill, just below the crest, was the first University building to be built. It was finished in 1851 and opened for instructional purposes on September 17th of that year. At present it is occupied by the Course in Commerce and the Department of German. South Hall, directly opposite, was erected in 1855. In it are the office of the Dean of the College of Letters and Science, offices, lecture rooms, and laboratories for the departments of bacteriology, political economy, and Semitic Languages and Hellenistic Greek, also the offices of the Wisconsin Geological and Natural History Survey. University Hall is on the summit of the hill. Its construction was authorized by the legislature in 1857 and the building finished in 1859. In 1897–99 a large wing was added to the south end and a new portico and dome were constructed. In 1905–6 a wing was added to the north end. This building contains the offices, closs rooms, and lecture rooms of most of the departments of language and literature, mathematics, history, and philosophy. On the first floor of the south wing are the offices of the President, the Registrar, and the Director of the Graduate School. The University Extension Division also has quarters in this building at present.

Across the east front of the campus, at the foot of University Hill, is a row of buildings erected at the expense of the State of Wisconsin. At the south is Chadbourne Hall, the dormitory for women. It was built in 1870 and remodeled

and enlarged in 1896. North of Chadbourne Hall stands Music Hall, completed in 1879. The rear part, occupied by the University Library until the summer of 1900, has been remodeled for the School of Music. Still farther north is Science Hall, the most costly of the University buildings, completed in 1887. In it are the lecture rooms, laboratories, and museums of the departments of physics, geology, anatomy, and pathology. Next to Lake Mendota is the old Chemical Laboratory, built in 1885, and now occupied by the departments of chemical engineering, physiology, and pharmacology. To the rear of this are the shops and the old Central Heating Plant, both erected in 1885. The old heating plant has been remodeled and is now used by the department of mining engineering for the work in metallurgy, assaying, etc. To the north of the shops, abutting the lake, is the Hydraulic Laboratory, completed in 1905.

To the west of Science Hall, on the north side of the campus, is the Engineering Building, erected in 1900. In 1910–11 a four-story addition was added to the Engineering Building, which has materially added to the facilities of the college. The addition contains class rooms, drafting rooms, offices, and also space for the engineering library, and a number of seminary rooms. Opposite this, on the south side of the campus, is the Law Building, erected in 1893, which contains the library, lecture rooms, and offices of the Law School.

Directly west of Chadbourne Hall, facing University Avenue, is Lathrop Hall, for the use of the women of the University, which was completed in 1910. This building combines all the features of a union and a gymnasium. It is a four-story structure 65 by 240 feet in size. The union comprises a reception room, rooms for social events and literary societies, a dining room and a cafetera. The gymnasium occupies the entire second floor and part of the third and fourth floors. The main gymnasium is 60 by 118 feet and to the west is a smaller room, 42 by 73 feet. In the basement is the swimming pool, 33 by 58 feet, and the bowling alleys. There is ample space for lockers and showers and the equipment of the gymnasium is complete in every respect, affording the women students complete facilities for physical training. In addition to the above, the building provides offices for the Dean of Women and for the instructors in physical

education. Also, the department of home economics is temporarily located in Lathrop Hall.

South of University Hall, at the corner of University Avenue and Charter Street, is the Chemical Building, completed in 1905. A new wing is being added to the west side of this building. The addition is to be 142 by 108 feet in size and its completion will mean an entire readjustment of the work of the department of chemistry, adding grealty to its facilities and efficiency.

Southeast of University Hall, just below the crest of the hill, is the new Biology Building, finished in 1912. This is a four-story building with two basements, made possible by the slope of the hillside, and is devoted entirely to the use of the department of biology. South of the central portion is an octangular auditorium 50 feet in diameter and to the south of this are the greenhouses attached to the laboratories under the auditorium. For the department of zoology a vivarium has been constructed near the southeast corner of the building and is connected by a passageway with an outdoor garden and a pool for obtaining natural conditions for aquatic creatures.

One block west of the Chemistry Building is the new University heating plant. The plant contains at present nine water tube boilers of 350 H. P. each, and is provided with conveyors for conveniently filling the bins above the boilers with coal and for removing ash from the stokers. The stokers are mechanically operated and because of this two men can look after the fires and the water in the boilers. The bins above the boilers have capacity for 4,000 tons of coal and additional storage room is provided for 200 tons more. The chimney is 250 feet high by 14 feet inside diameter. It is designed to be large enough for the plant when it is filled with 12 350 H. P. boilers and also when an addition for eight more boilers of the same capacity is built south of the chimney. The steam is generated at 115 pounds pressure and distributed to the various buildings through tunnels and conduits. The high pressure is required for the water works station which has steam-driven pumps. For heating purposes the pressure is reduced as the steam enters the buildings.

Directly east of the heating station is a four-story storehouse and shop building. It is 75 feet wide by 60 feet deep and is for general storage purposes and for the use of Uni-

versity workmen. The first floor, with the exception of the office, is devoted to the storage of cement. The second and third floors are used for work shops and the fourth floor is used for the storage of miscellaneous University supplies.

In 1906 the property on the southeast corner of State and Park streets was purchased by the University and the building on it was remodeled and is now occupied by the officers of the Regents. In 1908 the adjoining property, running down to Sterling Court, was purchased and the house on it has been converted into offices for the Secretary of the Alumni Association, the Alumni Employment Bureau, and offices and consultation rooms for the Department of Political Economy.

In 1912 the house at 762 Langdon Street, just east of the President's residence, was remodeled and enlarged and is now used by the Department of Clinical Medicine as offices and laboratories. The office of the Dean of the Medical School is also in this building.

Between the lower campus and the lake stands the Armory and Gymnasium, authorized by the legislature of 1891, and back of this, on the lake shore is the University boat house. During the present year a one story annex was erected on the east side of the gymnasium. This is 222 feet long by 84 feet wide and contains a running track and baseball cage.

Just west of University Hill on Observatory Hill, stands Washburn Observatory, erected in 1878 through the munificence of the late Gov. C. C. Washburn. Near it are the Students' Observatory and the residence of the director. On the western slope of Observatory Hill are the Hiram Smith Hall (the Dairy Department), constructed in 1891, the Horticulture-Soils Building, begun in 1893 and completed in 1896, and the new central Agriculture College Building, first occupied in 1904, which are described in that part of the catalogue devoted to the College of Agriculture. The Dairy Laboratory, 40 by 80 feet, adjoining Hiram Smith Hall on the east, was completed in 1911. It includes offices, class rooms, and large laboratories for instruction in dairying. South of Agricultural Hall are the Farm Engineering Building and the Agronomy Building, which were occupied for the first time in the autumn of 1907. Further west are located the Live Stock Pavilion containing an amphitheatre capable of seating 2,000,

the barns of the Experimental Farm, and the residence for the Dean of the College of Agriculture.

The Horticultural Building, completed in 1911, stands west of the Agricultural Engineering Building, facing north on Magnolia Drive. This building provides quarters for the Departments of Horticulture and Plant Pathology. South of the Horticultural Building are located the potting houses and four green houses completed in 1911.

South of the University farm lie the grounds of the poultry department upon which is the Poultry Building 30 by 56 feet in extent, together with laying houses, breeding pen, and a number of portable colony houses for the University flocks.

Two miles to the west lies the Hill Farm, used primarily for experimental purposes, for which modern farm buildings have been planned. A barn 36 by 106 feet and a large storage shed have been erected.

The Forest Products Laboratory, erected in 1909 and 1910 for the use of the Forest Service of the United States Department of Agriculture, is on the northeast corner of Camp Randall. The building is devoted almost exclusively to laboratory and office purposes and forms the centre for investigations in forest utilization for the whole United States.

Aside from the additions which have already been mentioned there are four new buildings in process of construction. Just east of Lathrop Hall is Barnard Hall, the new dormitory for women students. It is connected with both Lathrop and Chadbourne Halls by covered passageways. It is four stories high and accomodates 150 students. The first story contains the general parlors, administration offices, and dormitory rooms. The dining rooms are located in the basement facing to the east and south. To the north of the dormitory is the University Kitchen, used as a common kitchen for Lathrop Hall, Chadbourne Hall, and the dormitory.

East of Agricultural Hall and north of Linden Drive a building is being erected to be used by the Department of Home Economics in the Agricultural College and by the University Extension Division. It will consist of the main portion with wings to the right and left, the east wing only to be constructed at present. The centre portion of the building will be occupied for the present by the University Extension Division and will be divided into offices and work rooms. The

east wing and portion of the central part will be assigned to Home Economics, the laboratories being located in the wing. The upper stories of the building will be occupied by the Department of Art and Design.

The Agricultural Chemistry Building is in process of construction north of the Forest Products Laboratory and west of the drive leading to Agricultural Hall. It is to be a two-story building, constructed of brick with tile roof in general harmony with the other Agricultural buildings. The basement will contain the general laboratory for Agricultural Chemistry and a secondary laboratory for special work. The other parts of the basement will be occupied by small laboratories and store rooms, animal rooms, etc. The first story will contain the administration offices, the auditorium, seating 400, and small laboratories for special work. The second story will be occupied by laboratories for the different heads of departments and for research.

Work has been started on a building for the use of the Demonstration School at the corner of University Avenue and Lorch Street, one block east of the new Agricultural Chemistry Building. A new wing to the Library building is also in process of construction.

LABORATORIES

ANATOMICAL LABORATORIES.—There are laboratories devoted to human anatomy, vertebrate anatomy, histology, and embryology. These laboratories are thoroughly equipped with apparatus, models, and materials for advanced as well as elementary work.

BACTERIOLOGICAL LABORATORIES.—The laboratories for the College of Letters and Science are located on the third and fourth floors of South Hall; those for the College of Agriculture on the first and second floors of the Agricultural Building. The laboratories in South Hall consist of a suite of twelve rooms, including a large general laboratory and an advanced laboratory with special rooms for individual research.

BIOLOGICAL LABORATORIES.—The elementary laboratory for the Departments of Botany and Zoology is provided with com-

pound microscopes, dissecting microscopes, and other apparatus necessary to an elementary course in botany and zoology.

Botanical Laboratories.—The laboratories for advanced work in botany are fitted up with the apparatus and reagents necessary for advanced courses in vegetable morphology, histology, physiology, and cytology. They have been especially equipped for work on the development and physiology of the lower plants. A considerable amount of apparatus for work on the special physiology of the flowering plants is also provided. A special laboratory is devoted to work in general physiology, and all necessary reagents, ovens, paraffin baths and microtomes are provided for histological and cytological work on cell structure and the phenomena of cell division, fertilization, chromosome reduction, etc. Provision is also made for work on the metabolism of cells and their reactions to physical stimuli. The equipment includes apparatus for the study of the effects of various thermal light and gravitational stimuli on protoplasmic activities, a photometer, and a set of electrical measuring instruments, such as delicate d'Arsonval galvanometer, milammeter, resistance measuring instruments, etc., for the study of electro-physiological problems.

Chemical Laboratories.—The chemical laboratories are located in the chemical building, a large structure devoted exclusively to chemistry and pharmacy. On the first floor are the beginners' laboratories; these are also used for qualitative analysis. On the second floor are the laboratories of quantitative analysis, the food laboratory, and the laboratory of practical pharmacy. On the third floor are the laboratories of physical chemistry, the laboratory of electrochemistry, the laboratories of organic chemistry and the laboratory of pharmaceutical chemistry. The building also contains a large auditorium and three additional lecture rooms, one on each floor. On the second floor, there is a seminary room and on the third floor a library and reading room. Besides the rooms mentioned, the building is well supplied with offices, private laboratories, smaller laboratories for special work, dark rooms, balance rooms, and storerooms. All the laboratories are well lighted and well equipped for the work for which they have been designed. The supply of chemicals and apparatus is unusually good, and the chemical library contains

complete files of all the important chemical journals, and is well supplied with reference books and other works on chemistry and allied subjects. The chemical department is, therefore, able to offer exceptionally good facilities, not only for the pursuit of the usual courses in chemistry, but for original investigation as well. Research is especially encouraged, and such additional facilities as may be required for any special piece of work are furnished by the department when needed.

ENGINEERING LABORATORIES.—For a detailed description of the engineering laboratories see College of Engineering.

GEOGRAPHICAL LABORATORIES.—The laboratories for instruction in physical geography or physiography and in regional geography, now located in the Geological Museum in Science Hall, accommodate sixty students at a time. They are equipped with several thousand topographic, geological, geographical, climatic, and political maps, both of United States and of foreign countries, with 21 large and 17 small models of land forms, and with a growing collection of photographs. An outdoor experimental laboratory is being equipped.

GEOLOGICAL SEMINARY. This room is fitted out as a department library with a full equipment of reference books, maps, charts, etc.

MINERALOGICAL LABORATORIES.—The laboratory of mineralogy is located on the second floor of Science Hall, where desks, apparatus, and chemical reagents for courses in blow-pipe analysis and determinative mineralogy are provided for a class of thirty-four students. In the mineralogical lecture room are the necessary models of crystals in glass and wood, and working collections of crystals and minerals.

MEDICAL BACTERIOLOGICAL LABORATORIES.—These are at present located in South Hall. They are equipped both for elementary and advanced work.

PATHOLOGICAL LABORATORY.—This is in Science Hall and is equipped for advanced work as well as elementary work.

PETROGRAPHICAL LABORATORY.—This laboratory is supplied with polarizing microscopes, other necessary apparatus, and a very complete set of rocks and of rock and mineral sections, for courses in optical mineralogy and petrology. The gen-

eral and special collections mentioned under the caption of Museums are available for all advanced students of petrology.

PHYSICAL LABORATORIES.—The instruction in the department of physics is designed to meet the needs of all classes of students, from those just entering, with no knowledge of the subject, to those who have been well trained, and who are prepared to continue in the more advanced courses or take up a line of original investigation.

The physical laboratories are located on the first floor and in the basement of Science Hall, and are commodious and well equipped. Besides the lecture room and the large apparatus room the first floor contains the general physical laboratory, which is new and complete in its appointments in every respect. The lecture room has a seating capacity for 200 students, and is provided with all the appliances to facilitate a complete course of experimental lectures. In the basement are three large general laboratories for undergraduate work and a number of laboratories for special investigation. A well-equipped workshop under the direction of a skilled mechanic is an important feature of the department. Besides current supplied from the numerous dynamos in the University shops, the various rooms of the physical laboratory are connected with the electric light and power circuits of the city.

The physical apparatus includes, in addition to the equipment for demonstration purposes, an excellent collection of instruments adapted to measurement and investigation. The laboratory offers special facilities for carrying out graduate study and research.

PHYSIOLOGICAL AND PHYSIOLOGICAL CHEMISTRY LABORATORIES.—These laboratories occupy two floors in the south wing of the Chemical Engineering Building. They contain a thorough equipment for elementary and advanced work in experimental physiology and physiological chemistry.

THE STATE HYGIENIC LABORATORY is located on the second floor of Agricultural Hall and the abundant material here furnished for diagnostic purposes is also utilized for class room and research work.

ZOOLOGICAL LABORATORIES.—For advanced work in zoology new laboratories have been equipped with all necessary apparatus for regular classes, or for any special work that the

student may elect. In connection with much of the work done in zoology, use is made of the museum, which contains, besides the regular exhibit collection, special sets which have been purchased especially for use in the lecture room and laboratory. These include cases illustrating protective coloration, mimicry, sexual dimorphism, etc. There is a nearly complete set of Zeigler models, besides a large number of Blaschka models, especially rich in protozoa and coelenerata.

LIBRARIES

The libraries at Madison, all of which are at the service of members of the University, are five in number, *viz.:* the Library of the University of Wisconsin, the Library of the State Historical Society of Wisconsin, the Library of the Wisconsin Academy of Sciences, Arts, and Letters, the State Law Library, and the Madison Free Library. These libraries duplicate books only to supply exceptional demands, and have an effective strength approximately equal to the total number of volumes possessed by them. The total number of bound volumes in all the libraries is about 483,000 and the number of pamphlets exceeds 233,000.

The first three libraries above named are all housed in the library building of the State Historical Society on the lower campus of the University. This building, erected by the State of Wisconsin, affords most convenient accommodations for students. In the planning of the building, the special needs of the University were consulted.

In the south half of the first floor are located four department libraries of the Historical Society, *viz.:* documents, newspaper files, patents, and maps and manuscripts. In the north end of this floor is a series of six seminary rooms, allotted to American history, European history, political economy, political science, and mathematics. The greater part of the second or main floor is occupied by the general reading room and the periodical room, which are used in common by the two libraries. In these two reading rooms 275 readers may find ample accommodation at one time. In open cases in the reading rooms are shelved several thousand reference and "reserved" books. To these, as well as to the large collection of general periodicals in the periodical room, all readers

have direct access. The main portion of both libraries is stored in the stack wing adjoining the delivery room on the west. Officers of the University have direct access to the shelves in all parts of the library, and students engaged in advanced work, upon recommendation of their instructors, are allowed access to those parts of the collection dealing with their special subjects.

The administrative rooms of the Historical Society and of the University library are situated at the south and north ends of the second floor respectively. The north end of the third floor is occupied by six seminary rooms, for the departments of German, Latin, Greek, Romance languages, English, and philosophy and education. The south end of the third floor contains a small lecture hall, a room for the Wisconsin Academy of Sciences, Arts, and Letters, and two small administrative rooms. The museum and gallery of the Historical Society occupy the fourth floor. The library is open fourteen and one-quarter hours daily, during the academic year, except on Sundays and legal holidays.

Work has been started on a new wing to the library building, which, when completed, will materially add to the library facilities.

The library of the University of Wisconsin, including its branches, contains about 210,000 volumes and 45,000 pamphlets. The catalogue is the usual dictionary card catalogue of authors, subjects, and titles in one alphabetical arrangement. Subject to certain restrictions, books may be drawn by all members of the University. Students are required to make a guarantee deposit of $2.00 with the bursar of the Regents before borrowing books from the library. This amount is refunded on presenting to the bursar the library deposit card endorsed by the librarian.

The Law School has a special library of 21,000 volumes; and the Washburn Observatory is provided with the Woodman astronomical library, now containing 2,600 books and 2,700 pamphlets. The agricultural library of about 14,000 volumes is located on the first floor of Agricultural Hall. The engineering library is located on the first floor of the Engineering Building.

The library of the State Historical Society contains over

183,000 volumes and 188,000 pamphlets. While strong in all fields of American history and allied subjects, it is especially rich in manuscript and other material for the study of the history of the Mississippi valley. Its collections in English history are among the most extensive in this country.

The library of the Wisconsin Academy of Sciences, Arts, and Letters is a valuable collection of reports and transactions of learned societies, comprising about 5,000 volumes. It is located in the library building, and constitutes a useful supplement to the other libraries in this special field.

The State Law Library in the Capitol numbers about 55,000 volumes. Students are allowed to draw books from the Madison Free Library, a well selected collection of over 30,000 volumes.

MUSEUMS

Officers

Charles R. Van Hise, Ph.D., LL.D., President of the University.

J. J. Davis, M. D., Curator for Botany.

William S. Marshall, Ph. D., Associate Professor of Entomology, Curator for Zoology.

William S. Miller, Ph. D., Associate Professor of Vertebrate Anatomy, Curator for Vertebrate Anatomy.

F. T. Thwaites, Curator of Geological Museum.

Rollin H. Denniston, Ph. D., Curator for Pharmaceutical Collections.

The university museums comprise the Anatomical Museum, the Geological and Mineralogical Museum, the Biological Museum, the Herbarium, and the Drug Cabinet. The collections in the College of Engineering and the College of Agriculture are described in later pages.

When the museums are not open to the public, access may be gained by visitors at all reasonable hours by calling upon the janitor of the building.

THE ANATOMICAL MUSEUM is at present located on the fourth floor of Science Hall. It is primarily designed as an aid in teaching and investigation, and includes specimens and models illustrative of human and comparative vertebrate anatomy.

THE CHEMICAL COLLECTION.—The collection here described is

located in the new Chemistry Building. Through the liberality of the United Alkali Company of England, some fifty specimens of their products in various stages of manufacture were obtained. Dr. William Simon, of Baltimore, has contributed a series of specimens illustrating the manufacture of bichromate and ferrocyanide of potassium. Fries Bros. of New York have donated a number of synthetics used in perfumery. A similar collection has recently been received from the Herbene Chemical Co. of New York. A cabinet for volatile oils contains fine collections from Schimmel & Co., of Leipzig, Germany; Roure Bertrand Fils, of Grasse, France; Dodge & Olcott, New York; Lautier Fils of Grasse, France; H. Haensel of Pirna, Germany, and others. A cabinet for dye-stuffs contains about 1,000 samples of artificial dye-stuffs from the Farbenfabriken of Eberfeld & Co. of New York, Farbwerke vorm Meister Lucius and Bruening of Hoechst; Casella Color Company, New York; Badische Company, New York; Barret Mfg. Co., Philadelphia. These collections are supplemented by numerous volumes of richly illustrated descriptive matter, to which additions are being constantly received. Large and valuable collections of modern synthetic new remedies have been received from Schering and Glatz, from the Farbenfabriken of the Eberfeld Company, Merck & Co., Boehringer & Soehne, Bischoff & Co. and from Heyden Chemical Works, all of New York; also from Parke, Davis & Co., Detroit; Actiengesellschaft fuer Anilin Fabrikation, Berlin, and others.

The Drug Collection.—At present this collection contains about 4,500 sample specimens of drugs for purely illustrative purposes. Each year additions come to it as contributions from various sources. Among the larger contributors are Schimmel & Co. of Leipzig, Germany; Lehn & Fink, Parke, Davis & Co., and Gilpin, Langdon & Co. The collection is well supplied with drugs of Asiatic origin. Notable among them are a collection of fifty Ceylon drugs and medicines and a collection of more than one hundred Malay medicines.

The Geological Museum has been built up for the most part with special reference to instructional work. It is divided into four parts, one devoted to systematic paleontology, one to systematic collections of minerals and rocks, one to a systematic collection of ores, and another to relief models il-

lustrating topographic and geological features. The paleontologic section includes the Powers collection of Wisconsin fossils and also the Wisconsin Academy of Sciences, Arts, and Letters collection containing the type fossils described in the volumes of the first Geological Survey of Wisconsin.

A large amount of the general illustrative material, not coming directly under the above heads, is exhibited in cases in the halls of the geological department.

A number of additional collections are at present stored in the lecture rooms, laboratories, and offices, and are accessible to students interested. These include a collection of 40,000 specimens and 20,000 thin sections, belonging to the Pre-Cambrian and Metamorphic Division of the United States Geological Survey, one of the largest of its kind in the world; a large collection of New England rocks belonging to the same survey; the collection of the old Wisconsin Geological Survey; and the Hobbs collection, mainly of European rocks, supplied with over 1,000 thin sections.

The Herbarium of the University (Biology Building) includes the Lapham collection, chiefly of flowering plants, purchased by the State from the estate of I. A. Lapham, of Milwaukee. This collection, which contains about 8,000 species, has been mounted and arranged and is accessible for study. The Wisconsin plants have been separated from the rest and it is the intention to make them the nucleus of a complete representation of the Wisconsin flora. Large additions have been made to this herbarium by Professors L. S. Cheney and H. L. Russell. Mr. Lapham's collection also included a considerable number of algae, lichens, and mosses. The collection of mosses has been very greatly extended by gifts, purchases, exchanges, and collections acquired, so that it includes almost all of the species known to North America, besides a large number of those from other countries. Many valuable types and sets of exsiccati are included. The collection of algae and parasitic fungi contains the principal North American exsiccati as well as large local collections. There is also a large and rapidly growing collection of alcoholic and dried specimens of the fleshy fungi of the state.

The biological seminary room contains a department library with the main reference books and periodicals in zoology and botany, and card catalogues of biological literature.

THE PATHOLOGICAL MUSEUM is at present located in Science Hall. It comprises 300 specimens illustrative of gross morbid anatomy and is intended primarily as a teaching museum but is also open to the members of the medical profession.

THE ZOOLOGICAL AND BOTANICAL MUSEUM is in the Biology Building. Among the specimens at present placed in the cases may be named a good collection of vertebrate skeletons; a complete set of Zeigler models illustrating various stages in the development of vertebrates and invertebrates, models of the brain and sense organs; a large number of Blaschka glass models of invertebrates; an alcoholic collection of invertebrates from the Naples Zoological Station; representative collections of echinoderns, corals, and mollusks. The botanical cases contain a collection of Auzoux models of flowers, a collection of specimens of wood and of fleshy wood fungi of the state. The Owen collection of Lepidoptera, comprising 5,000 species, and over 20,000 specimens, is deposited in Science Hall.

LOCAL OFFICE, U. S. WEATHER BUREAU

As a result of the policy of The University of Wisconsin to coöperate with the scientific branches of the National Government, the local office of the U. S. Weather Bureau is located at the University and the official in charge lectures in the University on meterorology and climatology. (These courses are described on later pages, see Index under Meteorology.)

The functions of the local office of the Weather Bureau are (1) to observe the meteorological elements twice daily and to exchange the results by telegraph with other stations for use in forecasting the weather; (2) to prepare and distribute to the public the daily weather map, and forecasts, and other weather information; and (3) to maintain in operation a set of automatically recording instruments and to tabulate therefrom data for use in climatology.

The equipment of the station includes eye-reading instruments for measuring the barometric pressure, temperature, humidity, rainfall, and direction and velocity of the wind, and automatic registers for making continuous records of the bar-

ometric pressure, temperature, humidity, rainfall, direction and velocity of the wind, and sunshine.

The exposed apparatus is mounted upon the roof of North Hall. The office where the registers are in operation, is in Room 84 in the same building. It is open to the public from 9 a. m. to 4 p. m. daily, except Sundays and holidays. Visitors are especially welcome during the afternoon hours. The forecasts and information relative to weather or climate may be obtained by telephone at any time.

The student's meteorological observatory is also located on the roof of North Hall. Its equipment consists of a complete set of direct reading apparatus, of the same type as that used by the Weather Bureau, and the following additional instruments, *viz.:* a nephoscope for observing the direction and velocity of clouds, an evaporimeter, and a set of solar and terrestrial radiation thermometers. The equipment of the department includes a larger number of meteorological and climatological charts, and a full series of lantern slides illustrating meteorological phenomena.

FOREST PRODUCTS LABORATORY

The Forest Products Laboratory is a laboratory of practical research conducted by the Forest Service of the United States Department of Agriculture for the purpose of studying problems bearing on the more complete and efficient use of the products of the forest. The laboratory is conducted in cooperation with The University of Wisconsin; the University furnshes, without cost to the Service, the buildings and yard space needed, also the heat, light, water, gas and power required for operation. The Forest Service furnishes all equipment, bears all operating expenses, and employs the force of fifty or more persons required to carry on the work.

The staff of the laboratory coöperates with the faculty of the University in presenting the course of lectures outlined under Forestry and Wood Technology. The facilities of the laboratory are also available to advanced students and members of the faculty for research work in the field of forest utilization.

In its equipment the laboratory approximates commercial conditions much more closely than is ordinarily done in laboratory work. It, therefore, affords unusual facilities for reliable tests of commercial processes. The technical sections of the laboratory are as follows: (1) Timber Physics. In this section the structural and physical properties of wood are studied, including the effect of various methods of drying and handling. (2) Timber Tests. This section investigates the strength, stiffness, hardness, and other mechanical properties of commercial woods. (3) Wood Preservation. Studies are made in this section of the character and efficiency of various preservatives and methods of applying them to different woods. (4) Wood Distillation. The practicability of securing by-products of commercial value from the various forms of wood waste is the main problem of this section. (5) Wood Pulp. The section of wood pulp is concerned with the testing of woods to determine their fiber qualities and their value for pulp. (6) Chemistry. The work in this section is to investigate the chemical properties of woods and the products secured from them, also the properties of preservatives and other materials used in the treatment of wood. (7) Engineering. This section has to do mainly with the design of machines for utilizing wood waste among the industries which employ it as a material.

The laboratory conducts much coöperative work in connection with the industries which utilize the products of the forest. It has become already a well known institution and brings the University into prominence as an important center in the movement for the conservation and improved utilization of the forest. Because of the importance of the work and the large force maintained the Forest Service has made the laboratory the headquarters of the Branch of Products. The Assistant Forester in charge of this branch is stationed here and from headquarters in the laboratory building directs the work of the branch in all parts of the country.

GENERAL INFORMATION

UNIVERSITY REGULATIONS

THE UNIVERSITY YEAR

The regular University year opens on the last Wednesday in September.* There are two semesters in each year. The first semester ends on the Friday following the twentieth Wednesday of the college year. The second semester begins on the succeeding Monday, and ends with the annual Commencement, on the thirty-ninth Wednesday of the University year.

The limits of the Christmas vacation vary with the day of the week on which Christmas falls. The following table shows the arrangement:

If Christmas falls on	Vacation opens, noon	Recitations begin 8 a. m.
Sunday	Thursday, Dec. 22.	Wednesday, Jan. 4.
Monday	Thursday, Dec. 21.	Thursday Jan. 4.
Tuesday	Thursday, Dec. 20.	Thursday, Jan. 3.
Wednesday .....Friday,	Dec. 20.	Tuesday, Jan. 7.
Thursday	Tuesday Dec. 23.	Tuesday, Jan. 6.
Friday	Tuesday Dec. 22.	Tuesday, Jan. 5
Saturday	Wednesday, Dec. 22.	Tuesday, Jan. 4.

The Easter recess begins on Thursday morning before Easter Sunday, and closes on the morning of the following Tuesday.

STUDENT ADVISERS

In the College of Letters and Science, the College of Engineering, and the College of Agriculture, each student is placed under the immediate charge of a member of the fac-

* By action of the Faculty the opening of the University year in 1914 will occur on September 23rd.

ulty, who acts as his adviser in matters pertaining to University work. The student must consult his adviser in choosing studies, and obtain his approval before classes can be entered.

The system of student advisers varies somewhat in the colleges mentioned above, and does not obtain in the Law School.

INFORMATION FOR WOMEN STUDENTS

The Dean of Women gives general and individual attention to the academic and social welfare of women students.

For the benefit of those who are not accommodated in Chadbourne and Barnard Halls, (see Index) she has prepared a list of addresses where rooms for young women may be obtained. Each house on the list has been inspected by her, and while responsibility for them cannot be assumed by the University, they are believed to be suitable homes for women students.

By a resolution of the Self Government Association women students will occupy rooms only in such lodging houses as accommodate women exclusively, and in which a parlor is provided for the reception of visitors. Exceptions to this rule will be only by permission of the Dean of Women. The houses on the prepared list meet these requirements, and the list may be had upon application. All arrangements must be made directly with the persons mentioned in the list, and should be made early by those who desire a wide choice of rooms. All women students are required to report to the Dean of Women to register their addresses, and to be directed if rooms have not been secured. All changes of address are expected to be reported promptly.

Lathrop Hall, a commodious building, for the use of the women of the University provides, in addition to a finely equipped gymnasium, restaurant and rest room, a meeting place for student organizations, and a center for the social life of the University.

Mrs. Lois Kimball Mathews, the Dean of Women, invites correspondence with parents and guardians, and gladly cooperates with them regarding the welfare of students.

STUDENT HEALTH

The Department of Clinical Medicine has general supervision of the health of the students. It aims to determine the medical fitness of each student entering the University, to study the intricate problems of the relation of health to higher education and to prevent disease among the students by attempting to correct proved errors in present educational practices and in the life of the individual.

Medical Examinations.—Students entering the University for the first time are required to undergo a careful medical examination in order to determine their fitness to carry on University work. An appointment card is given the student at the time of registration and it is necessary that each report promptly. Records of the results of these examinations are kept in the office of the Department of Clinical Medicine for future reference in the supervision of the mental and physical development of the student. Recommendations are made to the deans relative to the apparent general efficiency and in the case of those required to take physical education, to the Department of Physical Education relative to the physical efficiency of the student.

In addition to this routine medical examination, which includes an examination of the heart, lungs, and other vital organs together with tests for vision and hearing, freshmen and those entering the sophomore class are required to undergo the physical efficiency tests conducted by the Department of Physical Education.

Medical Adviser's Office.—762 Langdon St., Telephone, Univ. 306.

This office is established for the general supervision of students needing medical attention. It is earnestly desired that all cases of student illness be promptly reported to this office whether or not professional service is desired. At the same time it is hoped that students should feel free to seek advice concerning the care of their health. A careful examination is made of the physical condition and the functional activity of those who consult the members of the staff and where it seems advisable the family physician is notified for future advice and consultation.

Minor illnesses and conditions affecting the general welfare of the University community are treated by the members of the staff, but students requiring care along special lines (diseases of the eye, ear, major surgery etc.) are referred to specialists.

At least one call is made on request of students confined to the house by illness. Personal care of students confined to the house by protracted illness can be given, however, only in exceptional cases. In cases of prolonged illness the services of a local physician should be secured, or, when practicable, the student should be removed to his home and placed in the care of the family physician.

Arrangement for students needing hospital care has been made with the Madison General Hospital Association, which has set aside two wards furnished in part by student contributions; one ward for men and one for women.

Students suffering with smallpox, diphtheria and scarlet fever are cared for at the City Contagious Hospital. For the milder contagious diseases a small isolation infirmary is maintained by the University, on Warren Street.

While it is expected that those who can do so shall pay for the cost of their hospital care special provision is made for those who cannot afford this, so that no student need be deprived of proper attention when ill.

Under the auspices of the University Committee on Hygiene a series of lectures on public and personal hygiene by eminent authorities is offered each year.

HONORS

Honors are given at graduation for special work of a high order of excellence done in any department. Such honors will be voted by the faculty to those students whose graduation theses show exceptional excellence, and who have completed with unusual success a long course of study in the department in which the thesis is presented. The thesis must show work additional to all requirements for graduation equal to two hours a week for one year. Students desiring to become candidates for special honors in any department must make application to the faculty, at the opening of the second semester, through the professor in whose department

the honors are sought. For honors in the College of Letters and Science, see page 143.

PRIZES

Lewis Prize

James T. Lewis, of Columbus, formerly Governor of the State, in 1865 gave to the University $100, and in 1866 added a further gift of $100, to constitute a fund the annual income of which should be expended to purchase a medal to be given as a prize for superior scholarship. In 1873 it was decided, with the consent of the donor, that the income should be presented as a prize to the undergraduate student producing the best written essay. By 1905 the fund had grown, through accumulated interest, to something over $300. In that year the Regents of the University decided that, in recognition of this having been the first gift to the University as a permanent endowment, henceforth the "Lewis Prize" should consist of $25 annually, and any deficiency in the income for any year shall be paid from the general account of the University. The prize is awarded to the undergraduate student who shall produce, during the collegiate year, pursuant to regulations prescribed by the President and Faculty, the best written essay.

Bryan Prize Fund

In 1899 William Jennings Bryan presented to the University the sum of $250, the annual income of which is used as a prize for the best essay on "The Science of Government."

William F. Vilas Medal and Prize Fund

In each of the fiscal years 1910–11 and 1911–12, Anna M. Vilas gave $125 for medals for intercollegiate debating and oratory. In June, 1912, in order to put this annual gift on a permanent basis, she turned over $4,000 to the Central Wisconsin Trust Company of Madison, the annual income to be used as follows:

First: $125 for seven medals in oratory, to be known as the William F. Vilas Medals for Oratory.

Second: Two cash prizes for essays—one for $50 and one for $25, to be known as the William F. Vilas Prizes for Essays.

Prize of the Wisconsin Menorah Society

In December, 1911, Julius Rosenwald offered the University $100 annually for a prize, to be known as the prize of the Wisconsin Menorah Society and to be awarded for an original essay, by an undergraduate of the University, on a topic relating to the literature, the history, or the achievements of the Jewish people.

UNDERGRADUATE SCHOLARSHIPS AND FUNDS

SCHOLARSHIPS FOR UNDERGRADUATES

The Amelia E. H. Doyon Scholarships

The will of Mrs. Amelia E. H. Doyon, late of Madison, provided for a gift to the University of $5,000 to be known as the Amelia E. H. Doyon Student Aid Fund. The income from this fund is divided into two equal parts, designated as the Amelia E. H. Doyon Scholarships, which are to be given to young women in attendance at the University, to be selected by the Faculty. In making this selection the scholarship or standing of the persons selected and their need of financial help are both taken into consideration. Neither of these scholarships is to be bestowed on any young woman who has not been in attendance as a student at the University of Wisconsin for at least one year.

The Fannie P. Lewis Scholarship Fund

By the will of the late Fannie P. Lewis, of Watertown, Wisconsin, the sum of $10,000 was left to be held in trust by the University Regents. The annual income from this money is to be equally divided between two women students of the University who shall be selected by the Regents, on the recommendation of the Faculty. In making these recommendations both scholarship and need of financial assistance are to be considered.

The Christian R. Stein Student Aid Fund

By the will of the late Christian R. Stein, of Madison, a bequest of $1,000 was made to the University, the interest of which maintains a scholarship to be given by the Faculty to a student of the University who has been in attendance at least one year.

The Henry Gund Scholarship in German Literature Fund

Mr. Henry Gund, of La Crosse, has generously established a fund of $5,000 to maintain a scholarship in German Literature.

The Mortar Board Scholarship

Mortar Board, a society composed of senior women, maintains an annual scholarship of $100 which is awarded to a woman student, the award being made on the basis of scholarship and need of financial assistance.

The Gamma Phi Beta Scholarship

The Gamma Phi Beta sorority, in 1911, established an annual scholarship of $100 for women students, to be awarded on the basis of scholarship and need of financial assistance.

The Henry Strong Educational Fund Scholarship

The Regents of the University, in 1912, accepted from the trustees of the Henry Strong Educational Fund the sum of $1,000 to be awarded to meritorious students in the University during the academic year 1912–13, in the form of undergraduate scholarships, ranging from $100 to $300 in value. It is probable that these scholarships will be maintained in the future. Information concerning them will be furnished by the chairman of the Faculty Committee on Loans and Undergraduate Scholarships.

LOAN FUNDS AND STUDENT AIDS

The John A. Johnson Student Aid Fund

The University is indebted to the liberality of Hon. John A. Johnson, late of Madison, for a fund of $5,000, the interest of which is loaned to students. The sum obtained by one

student in one year shall not exceed $50, and the total amount shall not exceed $200. The income of this fund is loaned by the Faculty Committee on Loans and Undergraduate Scholarships.

The Alexander H. Rogers Loan Fund

Through the generosity of the sons of the late Alexander H. Rogers, of Chicago, the sum of $1,000 from the estate of Mr. Rogers has been turned over to the University to be used as a loan fund for the assistance of needy students. By the terms of the gift no one student may secure more than $250 from this fund.

The Graduating Class Loan Fund

The class of 1900 gave to the University several hundred dollars, the profit of the Senior Class Play, as the nucleus of a loan fund for the aid of needy students, to which several succeeding classes have made substantial additions.

The Secretary's Loan Fund

The Secretary of the Regents in 1900 established a fund of $500 for the aid of meritorious students. Additions to the fund have been made by others. No loan shall exceed $50 in a single year, and the aggregate loans to any person shall not exceed $200.

Emery Loan Fund

In 1900 a fund was started by Miss Annie Crosby Emery, formerly Dean of Women, which is loaned to needy women students on recommendation of the Committee on Loans.

College of Engineering Loan Fund

The College of Engineering Loan Fund was started in 1901 by members of the Faculty of the College of Engineering. It has been added to at various times until it now amounts to about $800. It is used for the assistance of needy students in the College of Engineering.

Self Government Association Loan Fund

The Self Government Association has established a loan fund for the assistance of women students in need of financial assistance. This fund now amounts to about $500.

The Geneva Loan Fund

This fund of $450 was provided in December, 1903, by Mrs. E. P. Allis and Mr. Louis Allis, of Milwaukee, and by Mr. Frank W. Allis (member of the Short Course class of 1897), proprietor of Monona Farm, Madison. In February, 1905, F. W. Allis gave $150 additional, and in October of the same year Louis Allis contributed another $150 so that the fund amounts to $750. It is available to needy members of the Short Course classes of the College of Agriculture only, in small amounts. Loans from this fund may be made through the Dean of the College of Agriculture.

Agricultural Students' Loan Fund

In 1911 Albert B. Kuppenheimer of Chicago, donated to the University the sum of $750 to be used as a loan fund for the assistance of students in the College of Agriculture. Loans from this fund are made on the recommendation of the Dean of the College of Agriculture.

Employment Bureau

The Alumni Association at its Headquarters, 821 State Street, Madison, conducts an employment bureau for the benefit of those students who find it necessary to contribute to their own support. The positions that are most frequently supplied are waiting on table, tending furnace, washing dishes, assisting in the house, caring for lawns, doing chores, and serving as stenographer, typist, or clerk. Competition for these places is keen, and the number of applicants is usually in excess of the number of openings. Students who must earn part of their expenses are therefore urged to communicate early with the General Secretary of the Alumni Association. They are also advised to come to Madison several days in advance of the beginning of the college year. The Employment Director is at his office in the Alumni Headquarters daily (except Saturdays) from 2 to 5 P. M., and Saturdays between 9 and 12 A. M. No charge is made for the service of the bureau.

SOCIETIES AND PUBLICATIONS

LITERARY AND SCIENTIFIC SOCIETIES

The literary and debating societies of the University have played so important a part that they may almost be said to constitute a department by themselves. The Athenan and the Hesperian societies are nearly as old as the University itself, Athena having been organized in 1850, and Hesperia in 1854. Philomathia was organized in 1886, and Olympia in 1902. The societies are sustained with great enthusiasm, and are an important means of intellectual training. Athena, Hesperia, and Philomathia form what is known as the Joint Debate League, which arranges annually a public debate between two of these three societies. This joint debate has been a feature of the University for nearly forty years. These four abovementioned are men's societies in the College of Letters and Science. The debating society of the Law School is Forum-Columbia. The young women maintain two literary societies, Castalia, established in the early years of the University, and Pythia, in 1902. These seven societies form the Oratorical Association, which has charge of inter-collegiate debating and oratory. This association is a member of a pentangular debating league, composed of the universities of Illinois, Iowa, Minnesota, Nebraska, and Wisconsin. Each university meets two of the others each year in debate in rotation, so that in the complete round each of the universities meets each of the others twice. A series of preliminary contests, held at the middle of each year, is made up of a sophomore contest, a junior contest, a junior-ex contest, (between representatives of each of the literary societies chosen from the junior class), and a senior contest. The winner in this series is chosen as the representative of Wisconsin in the Northern Oratorical Contest, in which he meets representatives from the universities of Chicago, Iowa, Michigan, Minnesota, Northwestern, and Oberlin.

The most important scientific organization in the University is the Science Club, which includes both officers of in-

struction and advanced students, and seeks to promote an interest in scientific study and research. It conducts public meetings for the discussion of scientific topics of current interest. A bronze medal executed by T. Moring, London, is annually awarded by the Club for the best baccalaureate thesis on a scientific subject. The Historical and Political Science Association and the Language and Literature Club are new societies organized by instructors and graduate students for the purpose of fostering advanced work. In various departments of the University there are journal clubs or societies for furthering the special work of the departments. Among these are the *Germanistische Gesellschaft;* a Scandinavian society, *the Nora Samlag;* the Romance Language Club; the Pharmaceutical Society; the Classical Club; the Physics Journal Club; the Biological Club; and the Chemical Club. In other departments, where no such organization has been affected, similar results are reached by means of the various seminaries. The graduate students of the University maintain a Graduate Club. The University Press Club, the Cubs' Club, the Advertising Club, and the Hoard Press Club are composed of students preparing for journalism. Delta Alpha is a professional fraternity whose members are students interested in journalism while Theta Sigma Phi is the professional journalistic sorority. A Music Students' Club has been organized to encourage among the students a more serious study of the great composers and their works. The Haresfoot Club is maintained by university dramatic talent, and presents a play annually; the Red Domino Club is a similar organization maintained by young women; and the Edwin Booth Club aims to promote dramatic interest and train dramatic talent. Phi Alpha Tau is a semi-honorary fraternity devoted to the interest of oratory and public speaking. Admission is determined by the members, largely on the basis of native ability and proven success along these lines.

SOCIAL AND RELIGIOUS ORGANIZATIONS

The women have organized a Woman's Self Government Association, which seeks to further in every way the unity of spirit of women in the University, to increase their sense of

responsibility toward each other, and to be a medium by which the social standard of the University can be made and kept high. The religious organizations of the University include the Young Men's Christian Association, and the Young Women's Christian Association. Honorary fraternities are represented by Phi Beta Kappa, established in 1898, Tau Beta Pi, the honorary engineering fraternity, established in 1899, Alpha Zeta, the honorary agricultural fraternity, established in 1906, the Phi Lambda Upsilon, the honorary chemical fraternity, established in 1906, and Sigma Xi, the honorary scientific fraternity, established in 1907. The Iron Cross, the honorary senior society, is composed of students who have distinguished themselves in the various lines of student activity.

PUBLICATIONS OF THE UNIVERSITY

The Bulletin of the University of Wisconsin is published bi-monthly at Madison. The Economics and Political Science series, the History series, the Philology and Literature series, the Science series, the Engineering series, and the University Extension series contain original papers by persons connected with the University. A check list showing the issues to date in the above-named series and giving more detailed information regarding other publications of the University may be obtained on application to the University Librarian.

The General series of the Bulletin includes the annual catalogue, special announcements of the various schools and colleges, etc. A directory of officers and students of the University is issued in the early part of each academic year, and a general catalogue of officers and graduates of the University is published once in five years, the last having been issued in 1912.

The High School series comprises a number of manuals designed to assist secondary school teachers in the subjects included in the high school curriculum.

From Washburn Observatory are issued the Publications of Washburn Observatory; from the Agricultural Experiment Station, bulletins and annual reports; and from the office of the Farmers' Institute, the Wisconsin Farmers' Institute Bulletin.

STUDENT AND ALUMNI PUBLICATIONS

The publications issued by the students include the Daily Cardinal; the Sphinx, a bi-weekly illustrated humorous publication; the Wisconsin Magazine, a monthly; the Badger, the junior class annual; the Wisconsin Engineer, a monthly publication of the engineering students; and the Wisconsin Country Life Magazine, a monthly publication issued by agricultural students. The Wisconsin Alumni Magazine, a monthly journal, is the official organ of the alumni.

ADMISSION TO THE UNIVERSITY

METHODS OF ADMISSION

Students are admitted either upon examination at the University, or upon certificates from accredited schools, except that students and graduates of the Normal schools of this State, students from other colleges and universities, and adult special students, are admitted in accordance with the provisions stated below.

For the examinations at the University, see page 117.

TIME OF ENTRANCE

New students ordinarily enter the University at the opening of the first semester, but there are advantages in beginning work in the Summer Session, not only to the student who needs to strengthen his preparation, but also to the strong student, who, through the advantages offered by the Summer Session, may complete his university course *in three years* For the courses, see Index under Summer Session.

In a general way it is, moveover, advantageous to any student to begin work in the Summer Session, for the following reasons: He becomes familiar with university methods of instruction before the heavier work of the year begins; he receives more individual attention, as the classes in summer are smaller; his experience and the advice of his instructor will enable him more wisely to shape his course.

New students may enter at the beginning of the second semester, but they should be on hand the week preceding, in order to make the necessary arrangements as the regular work of the semester begins promptly on Monday morning.

ENTRANCE REQUIREMENTS

The requirements for admission are stated in terms of units. The term *unit* means the equivalent of five recitations a week for one year in one branch of study. In closely allied

branches not usually taught in periods of one year each, such as physiology and zoology, units may be constructed by adding the respective time values of such studies. In any subject three recitations a week for one year and a half may be counted as one unit.

Fourteen units are required for admission, of which six are required of all, and eight are elective. For a description of the amount of work expected in each of the subjects named in the entrance requirements, see page 108, under Preparatory Work.

I. The following six units are required of all:

English ..... 2 units
Mathematics ..... 2 units
Latin, German, or French ..... 2 units

II. In addition to the requirements under I, eight units must be offered from the following elective subjects:—

English ..... 1 or 2 units
Mathematics ..... ½, 1, 1½, or 2 units

Foreign Languages:
- Greek ..... 1 or 2 units
- Latin ..... 1, 2, 3, or 4 units
- German ..... 1, 2, 3, or 4 units
- French ..... 1, 2, 3, or 4 units
- Spanish ..... 1 or 2 units
- Scandinavian Languages (See note following).

History:
- Ancient History ..... 1 unit
- Medieval and Modern History ..... 1 unit
- Medieval and English History ..... 1 unit
- English History ..... 1 unit
- United States History ..... 1 unit

Civics ..... ½ or 1 unit
Economics ..... ½ unit

Science:

Botany	1 or 2 units
Chemistry	1 or 2 units
Physics	1 or 2 units
Physical Geography and Geology	1 or 2 units
Physiology	½ unit
Zoology	1 or 2 units

Vocational Subjects (See note below)	½, 1, 2, 3, or 4 units
Agriculture (See note below)	1, 2, 3, or 4 units
Commercial Work (See note below)	½, 1, 2, 3, or 4 units
(Including Commercial Law ½ unit; Commercial Geography ½ unit.)	
Domestic Science (See note below)	1, 2, 3, or 4 units
Manual Arts (See note below)	1, 2, 3, or 4 units

Optional Subject (See note below) ..... 1 unit

LIMITATIONS.—Not more than four of the required fourteen units will be accepted in any one subject. No foreign language course of less than two units will be accepted from students presenting only one foreign language. Students who present not less than three units of one foreign language may receive credit for one unit of a second foreign language.

VOCATIONAL SUBJECTS (Including Agriculture, Commercial Work, Domestic Science, and Manual Arts).—Not more than a total of four units in vocational subjects may be presented. These units may be within any one group or may be made up of such a combination of work from the different groups as may be approved by the University. Work in any of the vocational groups will be accepted for admission only after inspection and approval by the University.

Note.—Elementary work in any Scandinavian language to the extent of two units, neither more nor less, may be accepted for admission to the University as part of the requirements; provided that pupils presenting such work for admission shall also present at least two units of work in Latin, or German, or French; and provided further that such work in Scandinavian languages shall be accepted only after special inspection and approval.

OPTIONAL SUBJECT.—An optional subject is any subject of the student's high school course not specified in the list of elective subjects. One optional subject of one unit, or two of one-half units each, may be offered. No optional subject may be offered with four units of vocational subjects.

ADMISSION WITHOUT FOREIGN LANGUAGE.—Students may be admitted without foreign language under the following conditions: (1) They must offer fourteen units subject to all the limitations stated above, except that one optional unit may be offered with manual training, or two optional units without manual training. (2) The language requirements must be met before graduation. This will ordinarily require extra work to the extent of four hours a week for one year, which will not be credited as part of the number of unit-hours required for graduation in the several colleges and courses. Opportunity for making up the deficiency in language will be offered by the University.

ADVISED GROUPING OF PREPARATORY SUBJECTS.—Students are advised to adapt their preparatory work to the course that they expect to pursue in the University. Attention is called to the requirements for admission to the several colleges and courses, and to the statements of the several departments concerning the preparation best adapted to the work of each.

REQUIREMENTS FOR ADMISSION TO THE SEVERAL COLLEGES AND COURSES

COLLEGE OF LETTERS AND SCIENCE.—The studies under I, and electives under II, to make fourteen units.

Students entering this college are advised to present Latin and a second foreign language, to the amount of at least six units. The requirements in foreign language for the degree of Bachelor of Arts are as follows: sixteen unit-hours for those who offer four years or more of language at entrance; twenty-four unit-hours for those who offer less than four years of language at entrance. (See Index under Requirements for Degrees.)

COLLEGE OF ENGINEERING.—The following units are required of all:

English	2 units
Algebra	1½ units

Geometry, Plane and Solid, combination course extending over 1 year, as described on page 111.....1 unit
or Plane 1 year and Solid ½ year.....1½ units
The longer course covering 1½ units is recommended.

German or French .....2 units

Physics .....1 unit

The remainder of the required fourteen units must be made up from elections under II; excepting that no units may be offered in domestic science.

Students who enter with two years of French or German will be required to take one additional year of foreign language in their University course. For those who enter with three years of one foreign language or four years of two or more foreign languages no additional foreign language is required. Students who enter without foreign language will find it difficult to complete any of the courses in engineering in four years.

Students deficient in advanced algebra or solid geometry, but who meet present requirements for entrance to the College of Letters and Science will be admitted to the College of Engineering, but will be required to make up the deficiency during the first semester. Special classes will be provided for this purpose.

College of Agriculture.—The studies under I, and electives under II, to make fourteen units.

Law School.—(1) Candidates for a degree: Credits equivalent to the work of the freshman and sophomore years in the College of Letters and Science. (2) Not candidates for a degree: The studies under I, and the electives under II, to make fourteen units, and provided such candidates are at least twenty-one years of age.

Course in Commerce.—The studies under I, and electives under II, to make fourteen units.

Pre-Medical Course.—The studies under I, and electives under II, to make fourteen units. Students entering this course are advised to present two units of Latin, inasmuch as the medical schools require this amount of Latin for entrance. The University offers a beginners' course in Latin,

without credit toward a degree. Students are also advised to present four units of German.

COURSE IN CHEMISTRY.—The studies under I, and electives under II, to make fourteen units.

COURSE IN PHARMACY.—Four Year Course: The studies under I, and electives under II, to make fourteen units. No practical experience in pharmacy is required. Two Year and Three Year Course: (1) Graduates from high schools are admitted without examination and without practical experience in a drug store. (2) Non-graduates are admitted if they comply with the following requirements:

1. They must be at least eighteen years of age.
2. They must present satisfactory certificates of at least one year's attendance from some standard high school, or its equivalent from a similar institution.
3. The time intervening between the secondary education and the college course should have been spent in a drug store, where physicians' prescriptions are regularly compounded.

SCOPE OF THE PREPARATORY WORK

The following description serves to indicate the extent of the preparation expected in each of the several subjects named in the preceding requirements for admission:

English

English. 2, 3, or 4 units. All applicants for admission must present two units in English, one of which must consist of composition, and one of the reading and study of English classics. The two units required in English correspond in amount and character to the work of the first two years of the standard high school course, in which one-half of the time is devoted to theme-writing and instruction in the principles of composition, and one-half to the careful study of a number of English classics. It is recommended that applicants present at least three units in English, the third unit to consist of additional work in composition, and either (1) an outline history of English and American literature with the reading and study of representative selections of each period, or (2) the intensive study of a few typical examples of the novel, the drama, the lyric, and the essay. Four units of English should include composition, and both (1) and (2) given above, in addition to the two required units. A complete

statement of the work for each unit of preparation is given in No. 1 of the High School Series of the Bulletin of The University of Wisconsin, entitled, *The High School Course in English.*

Composition and Rhetoric. Systematic practice in theme-writing with instruction in the principles of composition and the forms of discourse must form an important part of each unit of English presented for entrance. Every student entering the University is examined as to his ability to express himself in clear, correct, idiomatic English. The test consists in requiring the student to write an essay on a familiar subject, in which he plans his work by paragraphs, and constructs both paragraphs and sentences in accordance with the simpler principles of composition. No student will be passed in this test and permitted to pursue the course in Freshman English whose work shows serious weakness in spelling, punctuation, grammar, sentence construction, or division into paragraphs. Facility of expression will not be sufficient to offset marked deficiency in spelling, punctuation, grammar, or sentence structure. Students whose preparation in English composition is found to be deficient must make up such deficiency in one year under penalty of being dropped from the University. The University provides a course of instruction for such students. See English, A., p. 172.

Reading and Study of English Classics. 2 units. The two units in English required of all applicants for admission must include the thorough study of at least ten of the English classics on the list of uniform college entrance requirements in English, or their equivalents. The first aim in the reading and study of these selections should always be to understand fully the thought expressed. It is necessary to understand each idea as expressed in the word, the allusion, or the figure of speech; to combine the ideas to get the thought of the sentence; and to follow the development of the thought from sentence to sentence in order to grasp the meaning of the paragraph, essay, story, or poem as a whole. The study of the form, the structure, the style, and the purpose of the selection; a knowledge of the author's life; the consideration of the relation of the selection to the age in which it was written and a comparison of it with other works of the same type, all give a better understanding of the classic. Particular atten-

tion should be given to words and idioms in the reading with a view to increasing the student's command of language.

HISTORY OF ENGLISH AND AMERICAN LITERATURE. 1 unit. In addition to the two required units in English, applicants for admission may present one unit in the history of English literature, or in the history of English and American literature. In designating this unit as a study of English and American literature, it is intended that the greater part of the time should be devoted to the reading of selections from representative authors of each period; and that in the study of the history of literature, which should not occupy more than one-quarter of the time, emphasis should be placed on general movements and tendencies in literature as shown in the selections studied. In the history of English literature characteristic selections from most of the following authors should be read: Chaucer, Shakspere, Bacon, Milton, Pope, Addison, Goldsmith, Gray, Burns, Scott, Wordsworth, Coleridge, Keats, Shelley, Tennyson, Browning, Lamb, George Eliot, Dickens, and Thackeray. In connection with the history of American literature the student should be familiar with representative works of Longfellow, Whittier, Bryant, Holmes, Irving, Hawthorne, Cooper, Poe, Lowell, and Emerson. A study of the principles of composition and the application of them in theme-writing must be included in this unit.

ADVANCED STUDY OF CLASSICS. 1 unit. Besides the two units of required work in the reading and study of English classics, students may offer one unit representing advanced work in the study of literature corresponding to the fourth year of the standard high school course in English. This should consist of a thorough and intensive study of the form, the structure, and the style of typical examples of the novel, the drama, the lyric, and the essay. At least one work from each of the following four groups should be included for this unit: (1) Thackeray's *Henry Esmond;* Hawthorne's *The House of Seven Gables;* Dicken's *Tale of Two Cities;* George Eliot's *Silas Marner;* (2) Shakspere's *Macbeth, Hamlet, King Lear;* (3) Palgrave's *Golden Treasury* (First Series), Books II and III, or Book IV; Milton's *Lycidas, L'Allegro* and *Il Penseroso;* (4) Burke's *Speech on Conciliation;* Webster's *First Bunker Hill Oration,* and Washington's *Farewell Address;* Maucaulay's *Life of Johnson, Essay on Milton;* Carlyle's *Essay on Burns.* A study of the principles of rhetoric,

with frequent and systematic themewriting, must form a part of this unit.

Mathematics

ALGEBRA. 1 or 1½ units. The unit is required of all students and should include the following subjects: Addition, subtraction, multiplication, division, equations of the first degree with one unknown number, simultaneous equations of the first degree, factors, highest common factor, lowest common multiple, quadratic equations, simultaneous equations above the first degree, elementary theory of indices and radicals.

An additional half year of algebra is strongly recommended for all students and is required of engineering students. The work should cover the following subjects: Simultaneous quadratic equations; ratio, proportion and variation; graphical representation of simple relations between two variables; binomial theorem for positive intergral exponents; logarithms, including use of tables in simple numerical work; first arithmetical and geometrical progressions.

GEOMETRY. At least one unit is required of all students.

1 unit, *combination course of a single year in plane and solid geometry.* This should consist of about 180 propositions of which 45 must be in solid and spherical geometry.

1 unit, *plane geometry.* A unit credit will be given for a more extensive and intensive course of a year in plane geometry.

½ unit, *solid geometry.* A half year of solid geometry following a year of plane geometry will be accredited ½ unit.

The requirement for admission to the College of Engineering is either the combination course or 1½ units of plane and solid geometry.

TRIGONOMETRY. ½ unit. The important properties of the trigonometric functions, the addition theorem and the more important formulas which follow from it, and the solution of the various cases of right and oblique plane triangles. The student should become familiar with the use of logarithmic and trigonometic tables.

An additional credit of ½ to 1 unit may be given to students who have had further work in algebra, trigonometry, and surveying, or other mathematics, but the total credit shall not exceed 4 units.

History, Civics, and Economics

History, 1, 2, 3, or 4 units. History may be offered in the following "blocks":

Ancient History to the year 800 A. D., 1 unit.

Medieval and Modern History, 1 unit.

Medieval and English History, 1 unit.

English History, 1 unit.

United States History, 1 unit.

One, two, three, or four blocks may be presented. A real equivalent may be presented in place of a block recommended above, but one year's course in general history will not be accepted.

Civics. ½ or 1 unit. A knowledge of the relationship existing between subordinate and higher political units together with a description of the chief functions performed by the institutions of the various political units.

Civics may be combined with history or economics in the construction of an elective unit.

Commercial Law, ½ unit, may be offered under civics.

Economics, ½ unit. A knowledge of the fundamental principles of economic science as presented in a good elementary treatise on the subject.

Commercial Geography, ½ unit, may be offered under economics.

Science

Botany. 1 unit. The course in botany should cover a study of the life histories of types from the main groups of plants, and should include also a series of simple physiological experiments. At least two-thirds of the course should consist of laboratory work. For further details see the report of the committee of the Wisconsin State Teachers' Association for 1902 on a high school course in botany.

Where it is not possible to give a full year's work to the subject, botany may be combined with physical geography and physiology in the construction of units.

Chemistry. 1 unit. A year's course in chemistry, consisting of a study of the more common elements and their compounds. The course should consist of both laboratory and recitation work. About three-fifths of the time should be spent

in the laboratory. Two laboratory periods are considered as equivalent to one class exercise. A record of all the work done in the laboratory should be kept in a note-book.

PHYSICS. 1 unit. A year's course in physics which must include both class-room work with a textbook and laboratory practice. The class-room work should be given not less than three periods a week, while the laboratory practice should require at least four actual hours of work a week in the laboratory, and a record of all work done should be kept in a carefully prepared note-book. Any one of the standard books, such as Carhart and Chute, Milliken and Gale, or Gage, may be used as a text.

PHYSICAL GEOGRAPHY. 1 unit. The physical geography should include: (1) The principles as presented in the best recent text-books, which give adequate treatment of the atmosphere and ocean and emphasize the development and influence of topographic forms. (2) Field study. The nature of this must be controlled by the locality; but every candidate offering physical geography will be expected to submit a statement of the field trips required in his course. (3) The interpretation and habitual use of topographic maps, weather maps, charts, and pictures in the laboratory.

Where it is not possible to give a full year's work to the subject, physical geography may be combined with botany and physiology in the construction of units.

PHYSIOLOGY. ½ unit. In this subject instruction must be given in anatomy, histology, and physiology of the human body, and the essentials of hygiene. The amount expected is indicated by that given in Martin's *The Human Body, Briefer Course.* The textbook work must be illustrated by charts and models, and anatomical demonstrations and chemical experiments should also be made.

ZOOLOGY. 1 unit. Instruction in this subject should include as much as four periods of laboratory per week. The student should study at least eight to ten types of animals and make careful descriptions and drawings of this work. Knowledge of life histories and habits and relation of environment is desirable. The laboratory work should be accompanied with class exercises, so that the student may gain intelligent appreciation of the meaning of his observations and of the bearing on zoological science of the facts observed by him. The nature

and scope of work expected may be indicated by the textbooks Needham, Colton, Jordan, and Kellogg, or Linville and Kelly.

Language

GREEK. 2 units. Grammar; Xenophon's *Anabasis*, four books; *Homer's Iliad*, three books; or an equivalent amount of the Odyssey; Greek composition.

LATIN. 4 units. Grammar and elementary book; *Caesar*, books I–IV, or an equivalent; *Cicero*, six orations (selections from the letters may be substituted for two orations). *Virgil*, six books; composition, preferably in connection with *Caesar* and *Cicero*. The work recommended in the report of the Cleveland Commission on College Entrance Requirements in Latin is accepted by the University.

These requirements are planned with special reference to the needs of those candidates who propose to continue in the University the study of ancient and modern languages and of history.

LATIN. 2 units. Grammar and elementary book; *Caesar*, books I–IV, or an equivalent; composition. Students who present two units and others whose preparation in Latin is, for any reason, deficient may continue the study in the University with course A or course B, which may be credited towards the bachelor's degree and used to satisfy the University's language requirements. No such credit will be given for high school Latin.

GERMAN. 2, 3, or 4 units. German may be offered for entrance as a subject of two, three, or four units, requiring respectively two, three, or four years of high school study and approximately corresponding to the "elementary," "intermediate," and "advanced" courses outlined in the "Report of the Committee of Twelve." This report can be procured, at the price of sixteen cents, from D. C. Heath & Co., Boston. A detailed statement of the work of each unit may also be found in "The High School Course in German," No. 2 of the High School Series of the Bulletin of The University of Wisconsin.

A. Elementary German. 2 units. Applicants should be able to pronounce and to translate at sight (into good idiomatic English) simple German prose, help being given upon unusual words and constructions, to put easy English sentences into German, and to carry on a very simple conversation upon the

texts set for translation. The required amount of grammar is contained in the current "brief" grammars, or in the "first parts" of larger grammars like those of Joynes-Meissner or Thomas. Of the strong verbs only the more usual are required. Applicants should have read not less than 200 pages of easy German, chiefly modern narrative prose, but including some simple poems and one or two short plays.

B. Intermediate German. In addition to the work outlined under *A*, applicant should have read from 300 to 400 pages of moderately difficult prose and poetry, with constant practice, both oral and written, upon portions of the texts read. The work in grammar, accompanied by exercises in composition, should be continued.

C. Advanced German. Besides the work outlined under *A* and *B*, applicants should have read from 400 to 500 pages of standard literature in prose and poetry, with reference reading in the history of modern German literature. They should be able to translate at sight any ordinary modern German text that is free from unusual difficulties, to write a brief German essay on a simple topic relating to the texts read, and to follow a recitation conducted in German.

Students without preparation in German enter course 1a. Those who have had two years of high school German will begin their work in the University with course 2a. Those who have had three years of German enter course 2b. Students who have studied German for four years in the high school regularly enter course 3a.

FRENCH. 2, 3, or 4 units. French may be offered for entrance as a subject of two, three, or four units, requiring respectively two, three, or four years of high school study, and approximately corresponding in difficulty to the "elementary," "intermediate," and "advanced" courses outlined in the "Report of the Committee of Twelve," pp. 75–83.

A. Elementary French. 2 units. The applicant should have a thorough knowledge of the grammatical forms of the language, and possess a sufficient vocabulary to read simple texts with ease.

Fraser and Squair's grammar is being used at present in the University, emphasis being placed upon oral and written drill outlined in the first 161 pages. Not less than 500 pages of simple French should have been read with careful attention

paid to pronunciation during the entire period. A list of suitable texts will be found on page 76 of the "Report of the Committee of Twelve."

B. Intermediate French. In addition to course *A*, the applicant should have read at least 600 pages of French chosen from nineteenth century classics, and done work in oral and written composition equivalent to that given in Fraser and Squair's *Complete French Grammar.*

C. Advanced French. One year's high school work in addition to Intermediate French. The applicant should be able to write a short composition in French and show his understanding of a simple lecture in French by answering questions upon it in French. He should also be familiar with the outline of French history and literature.

SPANISH. 2 units. Spanish may be offered for entrance as a subject of two units, corresponding to the amount of work done in the elementary courses of the University. The student should have acquired a fair pronunciation, considerable facility in the translation of easier Spanish texts and a fairly accurate knowledge of grammatical principles and of regular and irregular verbs. The work in grammar should in scope be approximately the same as that contained in Parts I and II of Giese's *First Spanish Book and Reader.* About four hundred standard pages should have been translated, the following texts being regarded as especially suitable:—Ramsey's *Elementary Spanish Reader, Gil Blas, El Captain Veneno,* Alarcón's *Novelas Cortas, El Pájaro Verde,* and at the end of the course, *Dona Perfect* or *José.* The student should be taught the Castilian pronunciation.

VOCATIONAL SUBJECTS

(Including agriculture, commercial work, domestic science, and manual arts.)

Owing to the present state of development of the vocational subjects in the high school curriculum no specific conditions are indicated for agriculture, domestic science, commercial work, or manual arts. The acceptance of work from any school for admission to the University will be based upon a special inspection; and the approval of courses will be dependent primarily upon adequate equipment and efficiency of instruction.

EXAMINATIONS AT THE UNIVERSITY

The regular examinations of the University are two in number, one in June and one in September. The earlier one is intended for those who wish to be examined while fresh from their preparatory studies, and for those who wish to test their qualifications at an early date in order that they may have time to make up deficiencies if necessary. The September examination immediately precedes the opening of the first semester.

For the current year the earlier examinations will be held on Thursday and Friday, June 11 and 12, beginning at 9 o'clock a. m. The later examinations will be held on Monday and Tuesday, September 21 and 22, beginning at 9 o'clock a. m. Students who are in any doubt as to their qualifications are urged to present themselves in June. All candidates are required to be present at 9 o'clock on the first day of the examinations.

Candidates for admission to the University may divide the subjects and take the examinations in two trials; but a failure to pass all of the subjects in the two trials will necessitate a complete re-examination.

The character of the entrance examinations is indicated by the extent of the preparation expected in each of the several branches, as described above, under the heading: Scope of the Preparatory Work.

ADMISSION UPON CERTIFICATE

Accredited Schools.—Any high school or academy in the state whose course of instruction covers the branches requisite 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. Application for such an examination may be made by an officer of the school to the Secretary of the Committee on Accredited Schools, on the basis of which a committee of the faculty will examine the course of study and the methods of instruction in the school, and on their favorable recommendation and the concurrence of the faculty it will be entered upon the accredited list of the University. No school will be placed upon the list

whose course of study is not fully equal to the four-year course of high schools recommended by the State Superintendent. The graduates of such an approved school will be received by the University without examination, on the presentation of a certificate showing the satisfactory completion of the fourteen required units, and containing the recommendation of the principal. Forms of such certificates, prepared by the University, must be used, and may be obtained from the Registrar. *These certificates should be sent to the University before August 1st.*

Any high school or academy with a complete four-year course whose course of instruction does not include foreign language may be admitted to the accredited list under the conditions stated above, provided that its course of instruction covers fourteen units in the subjects accepted for admission to the University. Graduates of such a high school or academy will be admitted upon certificate, under the conditions for admission without foreign language. (See Index under Admission).

Principals of accredited schools are requested to note the statement regarding the examination of freshmen in English, as stated under the heading: Scope of the Preparatory Work (see Index), and also the statement regarding the additional requirement and examination in algebra for admission to the College of Engineering, as stated under: Requirements for Admission (See Index).

The University desires to keep itself fully informed regarding the work of its accredited schools by means of annual reports and frequent inspections. Every accredited school is required to report each year concerning its teachers, course of study, methods of instruction, and material equipment. Blank forms are furnished by the University for this purpose. The University sends out inspectors at its own expense and at the convenience of the members of the staff. Especial attention is called to the necessity of promptly notifying the Secretary of the Committee on Accredited Schools of changes in the dates of examinations and vacations. The list of accredited schools will be published near the end of the academic year; it will be sent to all accredited schools and to all

high schools in the State of Wisconsin. Copies of the list may be had upon application to the Registrar.

SCHOOLS OUTSIDE OF WISCONSIN.—The following regulations will apply to graduates of schools from without the state:

1. Graduates of secondary schools outside of Wisconsin, included in the current list of accredited schools of the North Central Association, will be admitted when properly recommended and certified; provided, that the minimum admission requirements of the University be fulfilled in all cases.

2. Graduates of other secondary schools outside of Wisconsin will 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 located within the state, included in the membership of the Association of American Universities. In all instances the state university shall 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 both as regards number of units and character of work. In such cases the character of the work submitted shall be interpreted to mean an average standing of Good.

Credentials properly certified by the principal on forms provided by the University should, in all cases, be submitted for approval by the University *before August 1st.*

COLLEGE COURSES, WISCONSIN NORMAL SCHOOLS

The University will accept for credit to advanced standing the work of the two years in college studies now undertaken by the state normal schools of Wisconsin. The credits named hereafter will be given to students who, at the time of entering the normal school, were fully prepared to enter the freshman class at the University. The standard amount of credit will be thirty credits for one year's full work, and sixty credits for two years' full work in studies approved by the several colleges and taken substantially in the order required of students at the University.

The following credits may be taken in the several colleges and courses:

A. College of Letters and Science.

Bachelor of Arts—Sixty credits in required work and work regularly offered by the University to freshmen and sophomores.

Bachelor of Philosophy—Junior rank.

Bachelor of Science—A special amount as may be determined.

B. College of Agriculture.

Required and elective language, mathematics, and science, approved as equivalents by the College of Letters and Science, to the amount of sixty credits. Technical agricultural work credited only if given by special and properly qualified teachers.

C. College of Engineering.

Credit for language and science, so far as these are required in engineering, on the same basis as credit is given in the College of Letters and Science. For mathematics, less credit; ordinarily one semester less than the amount taken in normal school. In mechanical drawing, credit only so far as work is equivalent, as a technical study, to the course in the University.

D. Law School and Medical School.

Students who are entitled to sixty credits in college studies will be admitted to the Law School, and also to the Medical School if they have taken the studies required for entrance to that school.

Students from normal schools and normal graduates will not be granted more than two years' credit toward graduation; nor will they be granted more than sixty credits unless they enter a course whose first two years require more than sixty credits. In such case they may be granted more than sixty credits if the studies offered include the requirements of the University course.

Graduates of the Wisconsin state normal schools who desire to become candidates for degrees will be given credits as follows, in accordance with the resolution adopted by the

conference of Normal School and University representatives, March 12, 1909:

A. *Bachelor of Arts:* Graduates of the present German and Latin courses of the state normal schools will be granted sixty credits toward the Bachelor of Arts degree, under the following conditions: (a) All such students must absolve all the University requirements for this degree (see Index, Requirements for Degrees); (b) Before entering the course of the normal school, the full equivalent of a four-year standard high school course, as given in a high school on the accredited list of this University should be completed; (c) In the selection of elective work in the normal school, courses of University grades should be selected, preferably in science and mathematics; (d) Those students taking elementary foreign language in the normal school must comply with the same language requirements as students entering the University with no foreign language. This will ordinarily require extra work to the extent of eight credits, which may not be included in the one hundred and twenty credits required for graduation.

Application for admission and credit must be accompanied by a full statement of the work accomplished at the normal school, on the form provided by the University, which will be examined and rated by the Committee on Advanced Standing. The studies presented for credit must be fully equivalent to the corresponding courses in the University. Application for laboratory credit in science must be accompanied by laboratory or field books. No credit will be given for any work in a normal school done in a quarter when more than twenty hours per week were taken, except on special recommendation of the president of the school.

(B) *Bachelor of Philosophy:* The course leading to the degree of Bachelor of Philosophy is designed especially for normal school graduates, requires sixty credits of advanced instruction in education and philosophy, and in history, languages, and science, both required and elective. To this course graduates of the advanced courses of the Wisconsin state normal schools will be admitted, with the rank of junior, on the presentation of a certificate of graduation and a certified statement of their normal school standings.

NORMAL SCHOOLS OUTSIDE OF WISCONSIN

Graduates and students of normal schools of other states will be admitted to the University with such advanced credit as their previous work entitles them; except that no credit will be given greater in amount than that granted by the state University of that state to the school in question. In addition to this certificate and the certificate of high school work completed such graduates or students must present an official statement from the University of the state in question as to the amount of advanced credit that would be given for the work so completed.

STUDENTS FROM OTHER COLLEGES AND UNIVERSITIES

Students from other institutions, who have pursued standard college courses equivalent to those of the University will be admitted, and will receive credit for such courses upon the presentation of proper certificates of creditable standing and honorable dismissal. Blank forms for this purpose are provided by the University and transfer records from other institutions are required to be made out on these forms and submitted for consideration in advance of the opening of the University. Transfer records must be accompanied by a letter of honorable dismissal.

By arrangement with Beloit College, Lawrence College, Ripon College, Carroll College, Milwaukee Downer College, the Milwaukee German-American Seminary, (provided the candidate majors in German), Marquette University, and St. Clara's College, students of these institutions who have satisfactorily completed the work of the sophomore year will be admitted to the junior rank in the College of Letters and Science. In case of migration at an earlier period than the end of the sophomore year, proportional credit will be given. Students who complete two years of work at Beloit, Lawrence, Ripon, Carroll, Marquette will be admitted to the College of Engineering of The University of Wisconsin on the same conditions as students who transfer to that college from the College of Letters and Science of The University of Wisconsin. Students of senior rank from Lawrence, and Ripon who enter the Law School will receive credit for their law studies

toward graduation in the institution from which they come, to amounts to be determined by those institutions.

Students of other colleges of good standing who have not taken standard courses, but who have studied at least one year in the college proper, may be admitted to the University provisionally. In such cases the amount of credit will be determined by the Committee on Advanced Standing. The University reserves the right to test by examination the records presented.

No person will be admitted to the University later than November 1st of the year in which he expects to graduate.

ADMISSION OF ADULT SPECIAL STUDENTS

Persons twenty-one years of age, who do not possess all of the requirements for admission and are not candidates for a degree, are permitted to enter the College of Letters and Science and the College of Agriculture upon giving satisfactory evidence that they are prepared to take advantageously the studies which they desire. Such students are expected to select their studies from courses open to freshmen. If they desire to take studies to which only advanced students of these colleges are regularly admitted, they must show special preparation or special necessity for such courses. This privilege of admission is granted in the College of Engineering only to such students as are able, on examination, to meet all the entrance requirements in mathematics. The privilege of admission on the adult basis is not granted in the Law School.

Candidates applying for admission on the above basis are required to present a detailed statement of their preparatory studies at the time of their admission.

Adult special students who desire subsequently to become candidates for a degree must satisfy the regular entrance requirements.

FEES AND EXPENSES

GENERAL REQUIREMENTS

All fees must be paid at the beginning of each semester. Until this has been done, cards entitling the student to admission to classes will not be issued.

Tuition is free for all students from the State of Wisconsin. The liability of students to pay tuition charges, as distinguished from incidental fees, shall be determined by the Registrar.

Graduate students pay the same fees as undergraduate students of the College of Letters and Science, but all fellows and graduate scholars are exempt from the non-resident tuition fee, and honorary fellows and honorary scholars are exempt from both the non-resident and incidental fees. Graduate students *in absentia* pay the same fees as graduate students in attendance at the University, provided that after such students have paid fees to the amount they would naturally pay, if in attendance, for the degree for which they are candidates, no further fee will be required. Members of the instructional and research force of the University and members of the research staff of the State Geological and Natural Survey History who are candidates of degrees shall pay such fees as are prescribed for graduate students resident in Wisconsin, but the total fee so paid shall be limited to the aggregate sum required of students giving to such candidacy their entire time during the period ordinarily required to obtain the degree sought. The period ordinarily required to obtain a master's degree or corresponding professional degree shall be construed as two semesters, and the corresponding period for the doctor's degree as seven semesters.

An additional fee of one dollar per semester must be paid by students who pay their fees after the prescribed registration days. (See Calendar.)

From students entering after one-half of a semester or term shall have elapsed, only one-half of the prescribed tuition and fees shall be collected.

Upon the recommendation of the Commandant of the Department of Military Science, the Secretary of the Regents is authorized to remit fees to the extent of $10 per semester to company officers of the battalion having the rank of captain or above, and to award a prize of $50 at the end of each year of service of the field officers, colonel, lieutenant colonel, and adjutant.

TUITION* AND FEES

Graduate School

Resident tuition	FREE
Non-resident tuition, per semester	$50 00
Incidental fee for all students per semester	12 00

College of Letters and Science

Resident tuition	FREE
Non-resident tuition, per semester	$50 00
Incidental fee for all students, per semester	12 00

Medical School

Resident tuition	FREE
Non-resident tuition, per semester	$50 00
Incidental fee for all students, per semester	12 00

College of Engineering

Resident tuition	FREE
Non-resident tuition, per semester	$50 00
Incidental fee for all students, per semester	12 00
Summer vacation work	7 00

College of Agriculture

Resident tuition	FREE
Long and middle course, non-resident tuition, per semester	$50 00
Incidental fee for all long and middle course students, per semester	12 00

* Non-resident tuition is fixed by statute at the rate of $100 a year.

Incidental fee for all short and dairy course students, per term	6 50
Tuition fee for non-resident short course students, per term	38 88
Tuition fee for non-resident dairy course students, per semester	33 33
Tuition fee for non-resident forest ranger course students, per term	38 88
Incidental fee for all forest ranger course students, per term	3 25
Farmers' Course	FREE
Tuition fee for non-resident farmers' course students	5 50

Law School

Resident tuition	FREE
Non-resident tuition, per semester	$50 00
Incidental fee for all students, per semester	12 00

Summer Session

Graduate School	$15 00
College of Letters and Science (Six weeks)	15 00
College of Engineering (Six weeks)	15 00
College of Agriculture (Six weeks)	15 00
College of Agriculture (Ten weeks)	25 00
College of Law (Ten weeks)	25 00
Field courses, (geology, mining, metallurgy farm management), four weeks	10 00
Students remaining beyond the regular summer session, additional fee, per week	2 50

School of Music

Resident tuition	FREE
Non-resident tuition, per semester	$50 00
Incidental fee for all students, per semester	12 00

Persons who are members of other colleges of the University may take the general courses in music without charge. Members of the School of Music and other departments, who take special lessons, will pay fees as stated in the announcement of the school on a subsequent page of this catalogue.

Library School

Resident tuition per year	50 00
Non-resident tuition, per year	100 00

Students who have paid fees in other departments of the University before entering the Library School will pay an additional fee to reach the above amounts.

Wisconsin High School†

Resident tuition fee, Sixth and Fifth classes, per quarter	6 00
Resident tuition fee, Fourth, Third, Second and First classes per quarter	8 00
Non-resident tuition per quarter	15 00

REGULATIONS FOR DOCTOR'S THESIS

Each candidate for the degree of Doctor of Philosophy must deposit in the University library one hundred printed copies of his thesis. For detailed statement see Graduate School. The candidate may receive his diploma before the thesis is printed, provided a written or typewritten copy of the thesis is deposited with the Librarian, and the sum of $50 with the Bursar of the Regents. The money will be returned on presentation to the library of the required number of printed copies of the thesis within two years.

LABORATORY FEES

Biological Laboratories.—The laboratory fee for the elementary course in biology and for the other five unit-hour courses is $8 a year, or $4 a semester. The fee for comparative anatomy is $5 a semester; for histology and embryology $10 a semester. The fees for human anatomy are: osteology, $2; dissection, $10 per part dissected. There is also a breakage fee of $2.50 a semester. The laboratory fee for physiology, course 1b is $5.00 of which $3.00 is returnable, for course 5, $15.00 of which $4.00 is returnable, and for physiological chemistry $15.00 of which $5.00 is returnable. The fee for bacteriology is $2.00 for each unit-hour of credit with an additional fee for breakage of $2.00. The fee

† The complete school year of the Wisconsin High School consists of four quarters of twelve weeks each. At the present time (1914) the school is in regular session but three quarters.

for pharmacology and toxicology is $10.00 of which $5.00 is returnable.

CHEMICAL LABORATORIES.—In these laboratories the deposit is from $15 to $25, depending upon the amount of work taken. The amount refunded will depend on the chemicals used and the care exercised by the student.

GEOLOGICAL LABORATORIES.—The laboratory fees in the courses in geology, physiography, and mineralogy are from $1 to $6 per semester, depending upon the course elected.

PHYSICAL LABORATORIES.—The laboratory fee in the physical laboratories is $2 for each unit-hour (two hours per week of actual work) per semester.

PSYCHOLOGICAL LABORATORY.—The laboratory fee for the course in experimental psychology is $3; for other experimental work $3 per semester, or $5 per year.

COLLEGE OF MECHANICS AND ENGINEERING.—The charge for laboratory work is $2 per unit-hour (two hours per week of actual work) per semester.

COURSE IN PHARMACY.—See chemical and biological laboratories.

COLLEGE OF AGRICULTURE.—The charge for each unit-hour of laboratory work in the various departments is $1.00 per semester. A breakage deposit of $3.00, of which the unused balance is refunded at the end of the semester, must be made for each course in which laboratory work is done. The total fees for laboratory work during the first two years of the four-year course are approximately as follows: Freshman year, first semester, less the refund, $18, second semester, $12; sophomore year, first semester, $18, second semester, $5. The cost during the remainder of the course and for graduate work depends upon the nature of the work elected. Laboratory fees must be paid before the student can enter classes. Resident short course students pay a laboratory fee of $5, non-resident students, $15. All students in the winter dairy course pay a laboratory fee of $10, and in the summer course, $5. Non-residents in the winter dairy course pay a laboratory fee of $20, and in the summer course, $15. All dairy course students pay a refundable key and breakage deposit of $2.

GYMNASIUM PRACTICE AND MILITARY DRILL

Young men of the College of Letters and Science, College of Mechanics and Engineering, and the four-year courses in agriculture and pharmacy, are required to take gymnastic ex-

ercises during the first two years of their course, and are also required to take military drill. Students required to drill must provide themselves with a uniform, of color and pattern required by the Regents, the cost of which is about $15.

Locker fee, including laundry, per semester..... $1 25

Young women are required to take gymnastic exercise during the first two years of their course. A uniform gymnasium costume is required and can be purchased in the fall at the gymnasium office. Price $5.00.

Locker fee, including laundry, per semester..... $1 25

CHADBOURNE AND BARNARD HALLS

The University of Wisconsin has two halls of residence: Chadbourne Hall, which has accommodations for 115 women students, and Barnard Hall, which has accomodations for 150 women students. Each hall is lighted by electricity, and the heating apparatus is connected with the central heating plant. Elevators operated by electricity connect the several floors.

In accordance with the provision of the Legislature of July, 1913, preference in the assignment of rooms in these halls is given to residents of the state of Wisconsin; for students outside the state the children of alumni are given preference over others. Applications will be filled in regular order in accordance with this provision.

The young women who occupy these buildings are under the immediate charge of the Mistress of the Hall, and are expected cheerfully to conform with the requirements necessary for a family of students. Self government is maintained.

In order to give preference to members of the lower classes, the following apportionment takes place:

In Chadbourne Hall the number of seniors is limited to 10, juniors 15, and sophomores 35; in Barnard Hall the number of seniors is 15, the number of juniors 20, and the number of sophomores 35. Seniors and juniors resident in the halls, if they conform to the regulations as to residence in the state given above, will receive preference over those who are non-residents.

Each room is provided with rugs, a dresser, rocker, three-quarter cot, study table, bookshelves and window shades, but occupants other than summer session students are expected

to provide towels, pillow cases, blankets, and counterpanes or couch covers for the school year.

The price of rooms in Chadbourne Hall varies from $60 to $148 a year, according to location, and all residents must take their meals at the hall. The price of rooms in Barnard Hall varies from $80 to $125 a year, according to location, and here also all residents must take their meals at the hall. Both these halls accommodate in the dining rooms more students than live in the halls, so that students living in lodging houses may also take their meals in the halls. The cost of board at present is $76.50 for each semester (seventeen weeks at $4.50) payable in monthly instalments.

Applications for rooms should be made to the Secretary of the Regents after October 15, for the next following college year and must always be accompanied by a deposit of $10.

The deposit will be credited on the rent of the room; but if the room is not taken it will be forfeited unless notification is received by the Mistress prior to August 15. Applicants must accept the rooms assigned to them either in writing or in person before the opening day of the school year or they will forfeit the room. The balance due for rent must be paid to the Bursar not later than the second week after the beginning of each semester.

All applicants are supposed to retain their rooms for the entire year. If it is necessary for a student to withdraw at the end of the first semester, the deposit fee will be refunded provided the room has been filled by the Mistress of the Hall from the waiting list.

If for any reason one of the occupants of a suite shall be obliged to give up her place in the suite, the remaining person may be required to take a single room if one is vacant, or to pay the price of the full suite during the time it is occupied by her alone.

Rooms are ready for occupancy not earlier than the Saturday before the first registration day.

DEGREES

FIRST DEGREES

The following baccalaureate degrees are conferred upon those who have successfully completed the prescribed courses of study and who have complied with all other requirements of the University:—

Academic

Bachelor of Arts, upon the graduates in the College of Letters and Science, except those from the course for normal school graduates, and from the course in Pharmacy.

Bachelor of Philosophy, upon the graduates from the course for normal school graduates.

Professional and Technical

Bachelor of Laws.

Bachelor of Science (Agriculture).

Bachelor of Science, Home Economics Course.

Bachelor of Science, Civil Engineering Course.

Bachelor of Science, Mechanical Engineering Course.

Bachelor of Science, Electrical Engineering Course.

Bachelor of Science, Chemical Engineering Course.

Bachelor of Science, Mining Engineering Course.

Bachelor of Science, Chemistry Course.

Bachelor of Science, Pharmacy Course, upon graduates from the four-year course in Pharmacy.

Bachelor of Science, Medical Science Course.

Graduate in Pharmacy, upon graduates from the two-year course in Pharmacy.

Graduate in Music, upon graduates from the four-year course in Music.

Graduate in Agriculture, upon graduates from the two-year course in Agriculture.

A graduate of any of the courses may receive the baccalaureate degree of any other course by completing the additional studies 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.

The conditions on which the bachelors' degrees are given will be found stated under the appropriate colleges and courses on subsequent pages.

HIGHER DEGREES

The University confers in course the degrees of *Doctor of Philosophy* and *Doctor of Public Health*. The degree of *Master of Arts* is conferred as a second degree upon candidates who have received the degree of *Bachelor of Arts* or an equivalent, and the degree of *Master of Science* or *Master of Philosophy* upon candidates who have received the corresponding baccalaureate degrees. Candidates who have taken the degree of *Bachelor of Science* in one of the engineering courses, may receive the degree of *Civil Engineer, Mechanical Engineer, Electrical Engineer, Chemical Engineer* or *Mining Engineer*. The degree of *Master of Pharmacy* is conferred as a second degree upon *Graduates in Pharmacy*.

The conditions on which these higher degrees are granted will be found stated under the Graduate School, and also under the various colleges.

THE COLLEGE OF LETTERS AND SCIENCE

EDWARD A. BIRGE, Dean

REQUIREMENTS FOR THE DEGREE OF BACHELOR OF ARTS

1. General Conditions

The *credit* is the unit for computing the amount of work required for graduation. This is equal to one hour of recitation or lecture per week for one semester. Students are expected to secure 15 credits per semester in recitations, lectures, and laboratory work, making 30 credits per year, and 120 for the course. In addition men are required to take two hours per week of physical training during the first two years and secure a total of 4 credits. They are also required to drill two hours per week during the first two years, giving 4 credits. (For details see Department of Military Science and Tactics.) Women are required to take four hours of physical training per week during the first two years and secure 8 credits. The total requirements for class room work, military drill, and physical training are, therefore, 128 credits.

Each student is required to take recitation and laboratory work to an amount which will give 14-16 credits per semester, besides military drill and physical training in the case of students from whom these exercises are required. A student who desires to secure fewer than 14 credits must apply for permission through his adviser to the dean. In case a student has received grades of *good* in all studies of the preceding semester, he may take extra studies to an amount not exceeding 18 credits. No student will be permitted to receive more than 18 credits toward graduation in one semester in class room work except by permission of the faculty, obtained in advance.

For the special requirements of candidates for the degree of Bachelor of Arts in the Commerce Course or the Medical Course see announcement under those heads.

Students transferring from the Course in Commerce or Medicine, or from another college of the University, will receive no more than 15 credits a semester toward graduation for work already done, except in semesters where all standings are 85 or above. They will not receive credit for technical studies of another college, except to the amount and under the conditions stated under Election of Studies in Other Colleges, p. 138.

2. Required Studies

a. English, 6 credits (3 credits per semester for two semesters); to be taken in the first year of residence.*

b. Language: 16 credits for those who offer four units or more of foreign language at entrance; 24 credits for those who offer 2 or 3 units of language at entrance. Those who offer less than 2 units must also make up deficiency in preparation by extra work, see p. 100. The work shall be in year courses in two languages; and not less than 2 credits per semester must be taken in any language. Ordinarily the two must be chosen from the following groups: Greek (classical), Latin, French, German; but advanced work in another foreign language, to an amount not exceeding eight credits, may constitute one of the two languages, on the following conditions:

(1) The student must study the language more than one year. (2) Only the work beyond the first year ("advanced work") can be substituted. The first year's work will be accepted toward the credits required for graduation, though not as part of the required credits of language.

c. Two of the following: Natural science, 10 credits; mathematics, 6 credits; history, 6 credits, which must be a 3 credit course extending through two semesters.

Under natural science are included botany, zoology (or a combined course, Biology 1), chemistry, physics, and geology. All are five credit courses with laboratory work, or field work in geology.

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* On the completion of course 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.

3. Major Study and Thesis

Major Study.—At the beginning of the sophomore or the junior year every candidate for the degree of Bachelor of Arts shall select as his major subject the work of some one department in the College of Letters and Science. This department will determine the manner in which the work of the major shall be completed; the work required in the major (including thesis and required work) shall not be less than 20 credits, nor more than 40 credits; the thesis receiving 4 credits.

Thesis.—All candidates for a baccalaureate degree are required to present a graduating thesis, except as provided below. The subject of the thesis shall be approved by the student's adviser and filed with the chairman of the department in which the candidate is taking his major. It shall represent some phase of the student's work in the major study and shall be of a scholarly character. It shall be typewritten and bound according to specifications furnished by the Librarian of the University; and before it is accepted it shall be approved by the instructor under whom the work has been done. It shall be deposited in the University Library by the Thursday before Commencement.

One of the following substitutes for the thesis may be allowed when, in the judgment of the department, it is advisable:

1. A course restricted to seniors and graduates, in groups of not more than ten, with written reports of independent work done in connection with the course under the supervision of the instructor.

2. An individual reading or research course, with frequent conferences between student and instructor and with written reports of independent work.

These substitutes shall involve work equivalent to at least four credits, and shall be so certified by the instructor on the report card of each student taking either substitute. The several papers of each student shall deal with correlated subjects, and shall be prepared with due attention to expression and to logical form. Before any student's papers shall be finally accepted as a whole, they shall be typewritten and bound together according to specifications obtaining in the

case of the thesis. They shall be deposited in the University Library by the Thursday before Commencement.

4. Electives

All work not included in 2 and 3 is elective, but there shall not be taken in any one department more than 40 credits, including required work in excess of 6 credits, major, and electives. High school work for which university credit is given shall not count as a part of these 40 credits.

5. Studies of the Freshman Year

In this year one study only is absolutely required: English 1, three times per week. All other studies of the year must be chosen from the following groups:

GROUP I. At least one subject must be taken from this group and not more than 10 credits may be chosen from any one subject.

Greek: 3-5 credits; two semesters.
Latin: 3-5 credits; two semesters.
German: 4 credits; two semesters.
French: 4 credits; two semesters.
Spanish: 4 credits; two semesters (only in the Course in Commerce).

GROUP II. At least one subject must be chosen from this group. Not more than 10 credits can be taken in any one subject.

Mathematics:
Algebra: 3 credits; one semester.
Trigonometry: 3 credits; one semester.
These courses in mathematics are repeated each semester.

Science:
Botany: 5 credits; 2 semesters; 2 lectures; 4 laboratory periods, 1 recitation.
Zoology: 5 credits; 2 semesters; 2 lectures, 4 laboratory periods, 1 recitation.
Biology: A year's course arranged by combining Botany 1 (first semester) and Zoology 1b (second semester).
Chemistry: 5 credits; 2 semesters; 3 lectures, 3 laboratory periods, 1 recitation.

Physics: 5 credits. 2 semesters; 4 lectures, 2 laboratory periods, 1 recitation.

Geology: 5 or 3 credits; 2 semesters.

Astronomy: 3 credits; 1 semester. (This course can not be offered as part of required science).

History:

Ancient History: 3 credits; 2 semesters.

English History: 3 credits; 2 semesters.

Medieval History: 3 credits; 2 semesters.

Students may secure 5 credits in history by taking two courses. In this case they will do the full work of one course, receiving 3 credits; in the other they will omit much of the collateral reading, reports, etc., and will receive 2 credits.

Drawing: 3 credits; 1 or 2 semesters.

The student may take 14, 15, or 16 credits from these studies. The combination may be made by adding to English (3 credits) two foreign languages from Group I (6 to 10 credits), with one subject from Group II (3 to 5 credits); or by taking but one foreign language (3 to 5 credits) with two subjects from Group II (6 to 10 credits). Students are advised to carry on the language, or languages, which they have had in preparatory schools. Those who come with only two years of language preparation will be expected to continue this preparatory language during the freshman year.

The following courses which are open to freshmen will be found described under Departments of Instruction on the following pages. The figures following the name of the department refer to the number of the course as given under the proper heading under Departments of Instruction. Advanced courses in language are open only to students of suitable preparation.

English 1 and 1a, Greek A1, B, 1a, and 1b, Latin A, B, 1, and 2, German 1a to 3b, French 1, 2, 3, 4, 10, 11, 13, 14, 15 and 16, Mathematics 1, 2, 4, 7, 8 and 101, Biology 1, Botany 1, Zoology 1a, Chemistry 1, Physics 1, Geology 1 and 4, Astronomy 1, History 1, 5, and 10, Drawing 1 (Freehand or Mechanical), Journalism 1 (no credit). Only the 5 credit courses in science can be counted toward the science required for graduation.

6. Election of Studies in Other Colleges

Candidates for the degree of Bachelor of Arts are allowed to elect in the College of Mechanics and Engineering, the College of Agriculture (including the Course in Home Economics), the Law School, or the State Library School, studies to an amount not exceeding the equivalent of 20 credits. The conditions under which these studies may be elected are as follows:

1. Before electing studies in other colleges the candidate for the degree of Bachelor of Arts must have completed the work of freshman and sophomore years in the College of Letters and Science, including those studies which come normally in freshman and sophomore years.

2. Studies in other colleges may be elected only by students who spend at least two full years in attendance at the University before receiving the bachelor's degree. They may not be elected by students from other institutions who enter the University with a higher rank than that of junior, or by students who through correspondence study reduce the amount of required attendance at the University below two years.

3. Certain courses primarily intended for students of other colleges (such as Mathematics 101) are listed in the departmental announcements of the College of Letters and Science. Such courses are open to any student of suitable preparation in the same way as the courses primarily intended for the students of the College of Letters and Science.

4. Courses in other colleges and schools which are parallel to courses offered in the College of Letters and Science may not be elected without the consent of the dean of the College of Letters and Science.

5. Not more than 5 of the 20 credits may be secured in either semester of the junior year.

REQUIREMENTS FOR A DEGREE IN THE COURSE IN COMMERCE

Students who have completed the regular four years' course of the Course in Commerce will receive the degree of *Bachelor of Arts*. (See Index.)

REQUIREMENTS FOR THE DEGREE OF BACHELOR OF SCIENCE

Students who have completed the regular four years' course of the Course in Pharmacy will receive the degree of *Bachelor of Science, Pharmacy Course.* (See Index.)

Students who have completed the regular four years' course of the Course in Chemistry will receive the degree of *Bachelor of Science, Chemistry Course.* (See Index.)

REQUIREMENTS FOR A DEGREE IN THE COURSE IN MEDICAL SCIENCE

Students who have fulfilled the necessary requirements will receive the degree of *Bachelor of Science, Medical Science Course.* (See Index, under Medical School.)

The departments which constitute the Medical School are at present also constituent departments of the College of Letters and Science. The courses offered in these departments are open for election to any students in the College of Letters and Science who are prepared to take them. Candidates for the degree of *Bachelor of Arts* are not permitted to matriculate in the Medical School for more than one year. Candidates for the degree of *Bachelor of Science, Medical Science Course* may be registered two years in the Medical School. They may, with the consent of their advisers, elect up to 18 credits per semester, and may confine their work to the science and language groups of studies. The language requirements are those required for admission to the Medical School. (See Index.)

REQUIREMENTS FOR THE DEGREE OF BACHELOR OF PHILOSOPHY

Course for Normal School Graduates

Graduates of the advanced course of the normal schools of the state are admitted to advanced standing in the College of Letters and Science on conditions given under the heading Admission (See Index). A special course for normal school graduates has been arranged, leading to the degree of *Bachelor of Philosophy.* Sixty credits are required for the degree, which may be gained in two years. The course contains a minimum required amount of advanced studies in philosophy and edu-

cation,—6 credits in each—with the privilege of further elections in those subjects. All courses in philosophy, except course 1 (Elementary Psychology) are open to election by normal school graduates. In education, no elementary course may be elected by a normal school graduate; the courses which he may elect in fulfillment of requirements are explicitly indicated on p. 119 of the catalogue. Teachers' courses in the various departments may *not* be elected in fulfillment of the requirements in philosophy and education. This course also requires a continuous study of one foreign language (Latin, French, or German) during the two years of the course,—that is, a total of 16 credits. The student must also complete a major in some department on the same conditions as obtain for the B. A. degree. (See p. 135.) Any advanced courses in the College of Letters and Science for which the student is prepared may be elected by him but the required work, including a minimum of 20 credits in the major study, amounts to at least 48 credits. The student may not take courses that amount to more than 16 credits for the first semester, and he is under the same rules regarding number of hours as the student in the B. A. course. (See p. 133.) It is expected that the normal school graduate will give special attention to preparation for teaching some one branch of instruction, and he may choose his electives so as to attain this end. He must on entering select the work of some one department as his major study. His adviser will be assigned from that department, and it will be the duty of the adviser to arrange the student's work so that he may satisfy the requirements, both of the course and of the major study.

Students in the Course for Normal School Graduates may not elect studies from other colleges, except by special permission. This will ordinarily be granted only when the studies desired are necessary for the future work of the student as a teacher. Application for such permission should be made through the adviser to the dean.

Any student in this course who offers work in foreign language equal in amount to that demanded of candidates for the degree of Bachelor of Arts will not be required to pursue courses in foreign language in the University; and no student

will be required to complete more work in foreign language than is demanded for the degree of Bachelor of Arts.

Military drill and gymnastic exercises are not required of normal school graduates no matter what course they may enter.

A student who completes the course for normal school graduates may secure the University Teachers Certificate (see p. 142) provided he completes a teacher's course in his major subject.

In the first semester the student should begin foreign language, take part of the required courses in philosophy and education and begin his major study. The course of study will be as follows:

JUNIOR YEAR. Foreign language (each semester), 4 or 5 credits; philosophy or education; major study; electives; total credits first semester, 14–16.

SENIOR YEAR. Continuation of foreign language; completion of required philosophy and education; major study and thesis; electives.

Sixty credits required for graduation.

GRADUATION IN LESS THAN FOUR YEARS

The attention of students is called to the announcement of the Summer Session of the University, as given on subsequent pages of the catalogue. Work in the Summer Session will be credited in the same way as work in the regular session of the University, and by attendance at one session a total amount of credit may be acquired not exceeding 6 credits.

Candidates for the degree of *Bachelor of Arts* who desire to graduate in three years may do so by obtaining 17 or 18 credits per semester after the first semester of freshman year, and by attending three summer sessions, thus securing a total of 120 credits. Permission to take work to this amount will be given only to students whose standing in their studies is wholly satisfactory. No credit will be given for repetition in the Summer Session of studies taken in the regular session of the University, or for repeating in the University work done in the summer. Students will need to select carefully their work for the summer with reference to the required and elective studies of the course in which they intend to

graduate. The Summer Session offers exceptional opportunities for the preparation of a senior thesis. Any student who expects to shorten his course by means of the Summer Session should consult his adviser in selecting his studies.

PERIOD OF RESIDENCE

The minimum number of credits which must be secured in residence for a degree in the College of Letters and Science is the number normally taken in two semesters, or 30 credits. Students who desire to graduate with this minimum number must secure them in residence during the regular college year. This will require attendance during two semesters, which need not be consecutive. Attendance on summer sessions may not be substituted for this minimum.

Students who take in residence not less than the equivalent of three semesters' work—45 credits—may secure this by attendance on summer sessions only or by attendance during summer sessions and the regular university year.

STUDENT ADVISERS

Upon entrance, each student in the College of Letters and Science is assigned to a member of the faculty who acts as his adviser during the freshman and sophomore years. At the beginning of the junior year, when the student has selected his major study, a member of the department in which his major is chosen becomes his adviser. Each semester, the student is required to consult his adviser concerning the choice of studies and the adviser must give his approval before the student is permitted to enter classes.

THE UNIVERSITY TEACHER'S CERTIFICATE

In accordance with the laws enacted by the legislature of 1907, section 458b—2, as amended by chapter 514, Laws of 1913, certificates are issued to all graduates of a regular collegiate course who complete the course in pedagogical instruction prescribed by The University of Wisconsin. This certificate, when presented to the State Superintendent, entitles the holder to receive a license to teach in any public school in Wisconsin for one year. Graduates who have received this certificate and present

satisfactory evidence of good moral character and one year of successful teaching after graduation, are entitled to receive from the State Superintendent an unlimited state certificate.

For requirements for teacher's certificate, see Index.

HONORS IN THE COLLEGE OF LETTERS AND SCIENCE

Honors are awarded at two stages of the undergraduate course: (1) at the end of the sophomore year, and (2) at graduation.

Sophomore honors are awarded on the basis of work done and standings obtained the first three semesters, in two or more departments, preferably in allied fields. By awarding honors so early in the college course the faculty wishes to recognize seriousness of purpose and marked excellence on the part of the student.

Graduation honors are of two kinds. (a) Honors will be given for an exceptionally fine or original thesis, without consideration of the student's record in other work. (b) Senior honors are awarded for independent work done outside the regular courses in two or more departments during the junior and senior years. Candidates for honors will arrange for this extra work with the department in which they take their major study and will be examined on it by a special committee of all the departments involved.

DEPARTMENTS OF INSTRUCTION

ANATOMY

PROFESSOR BARDEEN (chairman); ASSOCIATE PROFESSOR MILLER; DR. DE GARIS, MR. SCHMIDT, MR. TOWNSEND, MISS DYAR.

For fuller description of the courses offered in this department, see announcements under Medical School.

For Undergraduates and Graduates

105. Comparative Anatomy. *Second semester; M., W., F.,* 1:30 *to* 3:30. Dr. DE GARIS.
110. Histology and Organology. *First semester; M., W., F.,* 9 *to* 12; *four credits.* Dr. MILLER.
115. Mammalian Embryology. *Second semester; S.,* 8 *to* 12; *two credits.* Dr. BARDEEN.
121. Human Anatomy. *Throughout the year; daily* 8 *to* 5:30; *six credits.* Dr. BARDEEN.
122. Topographical Anatomy. *Second semester; W., F.,* 1:30 *to* 4:30; *three credits.* Dr. MILLER.
123. Special Human Anatomy.
126. Neurology. *Second semester; Tu., Th.,* 1:30 *to* 4:30; *three credits.* Dr. MILLER.
130. Advanced Work in Anatomy.
131. Historical Seminary. Dr. MILLER.

For Graduates

235. Investigation under Direction.
236. Journal Club.
240. Independent Investigation.

ASTRONOMY

PROFESSOR COMSTOCK.

For Undergraduates

1. General Astronomy. A rapid survey of the fundamental concepts of astronomy, supplemented by a direct study of the sky. Open to freshmen. No previous mathematical training required. *First semester; M., W., F.*, 2:30. Supplemented by evenings at the observatory.

6. Astronomical Practice. Determination of time, latitude, and the direction of the meridian, together with drill in numerical computations. *Second semester; until May* 1, *twice a week at an hour to be arranged; after May* 1, *three evening meetings a week.*

Elective for juniors in civil and sanitary engineering.

7. Advanced Field Astronomy. Spherical astronomy, the method of least squares, theory and practice of the more refined methods for the determination of time, latitude, and azimuth. *Throughout the year.*

Open to election by students who have completed course 6.

For Undergraduates and Graduates

113. Spherical Astronomy. Apparent motion of the celestial sphere. Astronomical coördinates and their transformation. Parallax. Refraction. Time. Use of the ephemeris. *First semester; hours to be arranged.*

114. Practical Astronomy. Theory and use of the sextant, theodolite, transit, and equatorial. *Second semester; hours to be arranged.*

116. Orbital Motion. The differential equations of undisturbed motion and their integrals. Computation of ephemerides. Orbits of double stars and comets. *Throughout the year; conference with two or four hours of laboratory work a week.*

For Graduates

222. The Method of Least Squares. The theory with application to numerical computations. *Throughout the year; conference F.*, 11, *with two or four hours of laboratory work a week.*

225. Research Courses. Graduate students desiring to pursue advanced astronomical studies will be received in the Washburn Observatory as assistants. Facilities for independent original work will be afforded to such students, and their work, if of sufficient value, will be printed in the *Publications of the Washburn Observatory.*

BACTERIOLOGY AND HYGIENE

PROFESSORS RAVENEL (chairman L. & S.), HASTINGS (chairman Agr.); ASSOCIATE PROFESSOR FROST, ASSISTANT PROFESSORS FULLER, FRED; MR. WRIGHT, MR. NEUMANN, MR. RUSH; MISS ARMSTRONG, MISS FOX, MR. DUPRAY, MR. MEHLIG, MR. SHERMAN, MR. PRIMM.

For students desiring a general laboratory course in bacteriology, course 1 should be taken. On the basis of this general course, the student is then able to take up work along special lines. For a major in bacteriology, a minimum of twenty credits (including thesis) in addition to course 1 or its equivalent is required.

Students majoring in another department may elect a minor in bacteriology by taking ten credits in the department. Courses 7 and 6, without laboratory work, are open to all.

For Undergraduates

1. General Bacteriology. A course designed to give an understanding of the morphology and physiology of bacteria, and laboratory training in cultural and microscopical technique. *Repeated each semester; three credits.* Given in the College of Letters and Science. *Two lectures and two laboratory periods.* MR. FROST, MR. FULLER, MR. NEUMANN, MR. RUSH, MISS ARMSTRONG, MISS FOX, MR. DUPRAY, MR. MEHLIG.

1. A. Agricultural Bacteriology. A general discussion of the relation of micro-organisms to the soil, to the dairy, to animal diseases, to food preservation, and to the sanitation of the home. Prerequisite, course 1, General Bacter-

iology. *Second semester; two lectures; two laboratory periods; four credits.* Mr. RAVENEL, Mr. HASTINGS, Mr. FRED, Mr. WRIGHT.

1. B. General Bacteriology for Middle Course Agricultural Students. The first one-fifth semester of this course is given in the College of Letters and Science, the remainder in the College of Agriculture. *First semester; three lectures and three laboratory periods; one credit.* Mr. NEUMANN, Mr. RUSH.

2. Medical Bacteriology. A consideration of the relation of bacteria to disease processes in man and animals. A course designed to give students who intend to study human or veterinary medicine, a survey of the subject of pathogenic bacteria. This course should be taken by students intending to devote themselves to general bacteriology. *First semester; lectures and laboratory; five credits.* Mr. RAVENEL, Mr. DUPRAY, Mr. NEUMANN.

9. Industrial Bacteriology. This course is intended especially for home economics students and for those interested along industrial lines. It deals with general bacteriology but also includes a brief study of a few pathogenic organisms, transmission of diseases by flies and other insects, certain fermentations associated with industrial problems, the analysis of air, water, and milk with special reference to problems of public health, the bacterial efficiency of various methods of cleaning, and disinfecting, etc. *Second semester; five credits.* Mr. FROST, Miss ARMSTRONG, Miss FOX.

3 & 19 Agr. Thesis Work in Bacteriology. Students who desire to select their theses in this department must take course 1 in their junior year or before, and if the subject is selected in any other than general biological lines, the special work in medical, sanitary, or agricultural bacteriology, respectively, should be taken in the second semester of the junior year. The subjects should be selected before the close of the junior year and should be arranged for with the professor under whom the work has been elected.

6. Communicable Diseases. Lectures and assigned reading dealing with the causes and means of preventing com-

municable diseases. It is desirable that this course be preceded by course 7. Mr. RAVENEL, Mr. FROST.

7. General Hygiene. Lectures and assigned reading dealing with the subjects of personal and public hygiene. The subject is considered from a general rather than technical standpoint and is open to all students in the University. A number of outside experts in hygiene as well as professors in other departments, will lecture to the class. *Repeated each semester; one credit.* Mr. RAVENEL, Mr. FROST.

For Undergraduates and Graduates

104. Advanced Bacteriologic Technique. This course may be elected by students who have completed course 1 or its equivalent, and who desire a more extended knowledge of advanced technique. Essentially a laboratory course supplemented by conferences and reports. *First semester, two or more credits.* Mr. FULLER, Miss ARMSTRONG.

104a. Continuation of Course 104. *Second semester; two or more credits.* Mr. FULLER.

105. Topical Work. Students who in the judgment of the department are sufficiently prepared may be assigned special problems for study. *Two or more credits.* Mr. RAVENEL, Mr. FROST, Mr. FULLER.

108. Biology of Water Supplies. This course considers the technique of water examination, the hygiene of water-borne diseases, the examination of filters, the disposal of sewage, and the interpretation of analyses. Prerequisite, course 1, General Bacteriology. *Lectures and laboratory work; three credits.* Mr. RAVENEL, Mr. FULLER.

110. Practical Hygiene. Course devoted to discussion of the generally accepted principles of hygiene and sanitation. Students will be given opportunities to visit United States weather bureau, sewage disposal plants, and heating and ventilating plants. *Second semester; two credits.* Mr. FROST.

111. Immunity. Includes a study of the phenomena and theories of immunity in general as well as in the various infectious diseases. Lectures and reports. Open only to advanced students. Mr. RAVENEL.

111a. Laboratory Course in Immunity. This is an experimental course and includes a study of cytotoxins, agglutinins, precipitins, toxins, antitoxins, opsonins, etc. *First semester; two credits or more.* Mr. DUPRAY.

114. Methods of Teaching Hygiene. A course in elementary hygiene with experiments designed especially for teachers in schools with small equipment. It will include the study of infection, food supplies, milk, water, ventilation, waste, etc. *Second semester; hours to be arranged; two credits.* Mr. RAVENEL, Mr. FROST.

121. Dairy Bacteriology. A consideration of the relation of bacteria to market milk, butter, and cheese. Prerequisite, courses 1 and 1A. *First semester; one lecture; three laboratory periods; three credits.* Mr. HASTINGS, Mr. WRIGHT.

122. Transmissible Diseases of Animals. Given in connection with course 2, which see. Mr. RAVENEL.

123. Soil Bacteriology. A study of the relation of bacteria to soil processes. Prerequisite, courses 1 and 1A. *First semester; lecture, W.,* 10; *two laboratory periods; three credits.* Mr. FRED.

140. Journal Club. A club consisting of instructors and advanced students in the department meets every second week throughout the year. Advanced students are required to report on the progress in science along lines assigned to them by the program committee. This necessitates the reading of current scientific journals furnished by the department.

For Graduates

205 & 230. Agr. Research Work in Bacteriology. Opportunity is offered for work in original investigation, which may be arranged for on consultation. Prerequisites, courses 1, 2, 108, 9, 121. Mr. RAVENEL, Mr. HASTINGS, Mr. FROST, Mr. FULLER, Mr. FRED.

231. Seminar in Agricultural Bacteriology. A discussion of the research work of the department and reports on articles of interest to the students. *Throughout the year; once every two weeks; one credit.* Mr. HASTINGS.

BIOLOGY

Study in the biological sciences is conducted in the independent, though coördinated departments of Botany, Zoology, Anatomy, Physiology, Pathology, Pharmacology, Plant Pathology and Toxicology, and Bacteriology and Hygiene.

1. General Biology. An elementary one-year course in general biology may be taken by combining Botany 1 (first semester) and Zoology 1b (second semester), which see. Introductory to botany, zoology, anatomy, bacteriology and physiology, and a prerequisite for all advanced work in these departments. *Five credits per semester.*

BOTANY

Professor Allen; Associate Professor Overton (chairman); Assistant Professors Denniston, Gilbert, Lewis; Dr. Davis; Mr. Bartholomew; Mr. Pulling, Dr. Smith, Mr. Steil, Dr. Stewart; Mr. Bennett, Miss Bourn, Mr. Brannon, Miss Ellsworth, Mr. Elwers, Mr. Hungerford, Miss Keene, Miss Kilmer, Mr. Rosen, Mr. Wilson, Mr. Young.

Major in Botany

For a major in botany, a minimum of thirty credits is required; this should include besides the thesis, the following courses or their equivalents: Biology 1 (Botany 1 and Zoology 1b), Botany 103, 104, 105, and 106, or 2 and 146.

For Undergraduates

1. General Botany. An introductory course, preliminary to all advanced work. It may be taken, in combination with Zoology 1b, as part of an elementary course in general biology. *First semester; lectures, M., W.,* 2:30. Mr. Overton. *Eight hours of laboratory work and one recitation per week.* Mr. Gilbert, Mr. Lewis, Mr. Bartholomew, Mr. Pulling, Mr. Smith, Mr. Steil, Mr. Stewart, Mr. Bennett, Miss Bourn, Mr. Brannon, Miss Ellsworth, Mr. Hungerford, Miss Kilmer, Mr. Rosen, Mr. Wilson, Mr. Young.

2. Elementary Morphology and Physiology. A continuation of course 1 for those who wish a year's course in general botany. May be taken as part of a teacher's minor or, with course 1, may be substituted for Biology 1, in satisfaction of the requirement of a year of natural science. Lectures, laboratory work, and field trips. *Second semester, M., W., F.*, 1:30 *to* 3:30; *lectures, Tu., Th.*, 1:30; *five credits.* Mr. LEWIS, Mr. WILSON.

16. Theses. It is important that senior thesis subjects be selected, whenever possible, before the close of the junior year.

For Undergraduates and Graduates

103. Morphology of Algae. An outline of the development of the different series and their relationships, and discussion of problems of research in connection with the various groups. *First semester; M., Tu.*, 1:30 *to* 3:30; *lecture, Tu.*, 2:30; *two credits.* Mr. LEWIS.

104. Morphology of Fungi. Parallel to course 103, and taking up the morphology of the various groups of fungi with especial emphasis upon those of economic importance. *First semester; M., W., F.*, 8 *to* 10; *lecture, W.*, 8:00; *three credits.* Mr. GILBERT, Mr. STEIL.

105. Morphology of Bryophytes and Pteridophytes. A study of types of liverworts, mosses, ferns, equisetum, and lycopods. *Second semester; Tu., Th.*, 1:30 *to* 3:30; *lecture, Tu.*, 2:30; *two credits.* Mr. STEIL.

106. Morphology of Seed Plants. A study of the life history of a few types of gymnosperms and angiosperms. *Second semester; M., W., F.*, 1:30 *to* 3:30; *lecture, F.*, 2:30; *three credits.* Mr. LEWIS, Mr. STEIL.

110. Plant Histology. A systematic study of the tissues of seed plants and ferns. Use of reagents and stains, section cutting and mounting. *First semester; M., W., F.*, 8 *to* 10; *three credits.* Mr. DENNISTON, Mr. ELWERS.

111. Microscopical Examination of Drugs and Foods. The characteristics of powdered drugs and food products, and methods of detecting adulterations. *Second semester; M., W., F.*, 8 *to* 10; *three credits.* Mr. DENNISTON, Mr. ELWERS.

115. Histology of Woods. A laboratory study of the minute structure and characteristics of important forest trees. *First semester; two credits.* Mr. DENNISTON.

116. Pathological Plant Anatomy. A study of the changes induced in the tissues of the host plant by fungi and other parasites. Demonstrations, discussions, and reviews of the literature. *Second semester; one credit.* Mr. STEWART.

120. Mycology. Special work on the morphology and classification of the fungi is offered to advanced or graduate students. *Hours on consultation.* Mr. GILBERT.

121. Classification of Parasitic Fungi. Field and laboratory study of types of the various groups. *Throughout the year; one credit per semester.* Mr. DAVIS.

122. Special Morphology and Classification. Opportunity for advanced work on algae, bryophytes or pteridophytes is offered to students of adequate preparation.

129. Classification of Cultivated Plants. A brief systematic course dealing with the structure and relationships of the common crop plants and weeds. *First semester; four hours' laboratory work per week; two credits.* Mr. STEWART, Mr. BARTHOLOMEW, Miss BOURN, Mr. HUNGERFORD, Miss KEENE, Mr. YOUNG.

130. Identification and Classification of Seed Plants. A study of the floral structure of types of seed plants, with especial attention to those of economic importance. Practice in the determination of species by the use of a systematic key. Lectures, laboratory, and field work. *Second semester; M., Tu., Th., F.,* 8 *to* 10, *and Saturday excursions; four credits.* Mr. DENNISTON, Mr. STEWART.

131. Dendrology. A study of the structure and characteristics of forest trees. Lectures, laboratory, and field work. Prerequisite, course 1 or its equivalent. *Second semester; two credits.* Mr. DENNISTON.

132. Pharmacognosy. A study of materia medica, including the origin, history, properties, and uses of drugs. Required of all students in pharmacy. *Throughout the year; M., F.,* 11; *two credits.* Mr. DENNISTON.

133. Pharmacognosy. A study of the microscopic structure and characteristics of types of drugs. *First semester; three credits.* Mr. DENNISTON.

134. Pharmacognosy. An abridgement of the work given to pharmacy students is offered for those intending to study medicine. *First semester; three credits.* Mr. DENNISTON.

135. Sources and Collection of Crude Drugs. Laboratory and field work, supplemented by lectures and recitations. Required of first-year students in pharmacy. *First semester; one credit.* Mr. DENNISTON.

146. Plant Physiology. Lectures and laboratory work on the special physiology of the vascular plants. Prerequisite, course 1 or its equivalent. *Second semester; lectures, Tu., Th.,* 10; Mr. OVERTON. *Laboratory hours to be arranged; four credits.* Mr. BARTHOLOMEW, Mr. PULLING, Mr. SMITH, Mr. BENNETT, Mr. BRANNON, Mr. HUNGERFORD, Miss KEENE, Mr. ROSEN, Mr. YOUNG.

147. Advanced Plant Physiology. Designed to extend the student's knowledge and to prepare him for research. Special problems may be assigned as well as the reading of selected literature. Prerequisite, course 146 or its equivalent and a general knowledge of physics and chemistry. *First semester; hours to be arranged.* Mr. OVERTON, Mr. BRANNON.

150. Cytology. General physiology of organisms. Lectures and laboratory work on the nutrition, growth, reproduction, and irritability of the cell. Prerequisite, courses 103 to 106, or their equivalent. *Throughout the year; M., Tu., W., Th., F.,* 10 *to* 12; *five credits.* Mr. GILBERT, Mr. SMITH.

148. Physiology of the Fungi. Advanced work on the nutritive physiology of fungi with especial reference to those parasites that cause diseases of plants. *Second semester; hours to be arranged.* Mr. OVERTON.

152. Cytology of the Fungi. Lectures, demonstrations, and laboratory work on the special cytology of the various groups of fungi. Prerequisite, courses 104 and 150, or their

equivalent. *Second semester; hours on consultation; two credits.* Mr. GILBERT.

154. Hybridization, Parthenogenesis, and special problems in the fertilization of the angiosperms. A discussion of some of the more fundamental principles of plant breeding. Prerequisite, course 1 or its equivalent. *First semester; hours on consultation; two credits.* Mr. OVERTON.

156. Facts and Theories of Heredity. A discussion of theories of heredity in the light of results of recent experimental and cytological investigations. Prerequisite, course 1 or its equivalent. *Second semester; two lectures a week and assigned readings; two credits.* Mr. ALLEN. (Omitted 1913–14.)

160. The Teaching of Botany. This course presents the aims, methods and scope of botany suitable for the high schools of the state. Special attention is given to the presentation of the subject, and to the collection and preparation of material. *Second semester; two credits.* Mr. GILBERT, Miss BOURN.

For Graduates

214. Seminary. A study of selected topics of general botanical interest. *Th.*, 3:30 *to* 5:30. Mr. GILBERT, Mr. LEWIS.

215. Seminary in Plant Physiology. A critical discussion of the results of research and reports on the literature of some phase of plant activity. *W.*, 3:30 *to* 5:30. Mr. OVERTON.

216. Research. Students whose preparation is adequate will be assigned special subjects of investigation. This will constitute the greater part of a graduate major in botany.

CHEMISTRY

PROFESSORS FISCHER, KAHLENBERG (chairman), KREMERS, LENHER; ASSOCIATE PROFESSOR WALTON; ASSISTANT PROFESSORS KRAUSKOPF, MATHEWS, MILLER; DR. AUGSPERGER, MR. BAKER, DR. BARNEBEY, DR. CARLETON, DR. ELLINGSON, DR. JONES, DR. KOENIG, MR. NEBEL, DR. WAKEMAN; MR. BOUTWELL, MR. BURCHARD, MR. CRAWFORD, MR. CURTIS, MR. EVANS, MR. GETCHELL, MR. HANSON, MR. JONES, MR. LANGENHAN, MR. MELOCHE, MR. MILLER, MR. RITTER, MR. SCHUETTE, MR. TALBOT, MR. WOLLIN.

For Undergraduates

1. General Chemistry. A general introductory course. In the first semester the work consists of the chemistry of the non-metals, while the second semester is devoted to the metals and qualitative analysis. *Lectures M., W., F.*, 10. Mr. KAHLENBERG, Mr. WALTON, Mr. KRAUSKOPF, and assistants.
2. General Chemistry for Freshmen in the College of Engineering. Two experimental lectures and two two-hour laboratory periods per week. *Lectures Tu., Th.*, 10. Mr. KAHLENBERG, Mr. WALTON, Mr. KRAUSKOPF, and assistants.
4. Thesis. Work for the baccalaureate thesis may be elected in any branch of chemistry in which the student has sufficient preparation. Not later than the beginning of the senior year the work should be arranged with the professor under whom it has been elected. *Two credits per semester.*
5. The Teaching of Chemistry. A course considering both the matter to be presented and the methods of teaching to be adopted in a high school course of chemistry. The prerequisites for the course are course 1, the first semester of course 120, and five unit-hours of work in course 11; the latter may be taken during the same semester as this course. Two credits toward the University Teacher's Certificate will be allowed students who have completed this course. *Two lectures or recitations per week during the second semester.* Mr. WALTON.
11. Quantitative Analysis. Introductory laboratory course accompanied by weekly lectures. Mr. LENHER, Mr. CARLE-

TON, Mr. BARNEBEY, Mr. CRAWFORD, Mr. JONES, Mr. MELOCHE, Mr. SCHUETTE.

11a. Quantitative Analysis. For agricultural students. Introductory laboratory course with lectures and recitations. Mr. FISCHER, Mr. CARLETON, Mr. BARNEBEY, Mr. SCHUETTE, Mr. MELOCHE, Mr. CRAWFORD, Mr. JONES.

26. Pharmaceutical Chemistry. (Inorganic) Required of students in Pharmacy. Course 1 is a prerequisite. *First semester; lectures and recitations, M., W., F., 10; four credits.* Mr. KREMERS, Miss WAKEMAN.

27. Pharmaceutical Chemistry. (Organic) Required of students in pharmacy. *Second semester; M., W., F., 10, and laboratory work; five credits.* Mr. KREMERS, Miss WAKEMAN.

28. Alkaloid Assay. One hour required of students in the pharmacy course during second semester. Additional work may be elected upon consultation. Mr. LANGENHAN.

40. Plant Chemistry. A three-hour study supplementary to pharmacognosy (Botany 132), *Lecture or recitation, M.,* 10. Mr. MILLER.

For Undergraduates and Graduates

107. History of Chemistry. A general survey of the history of the development of modern chemistry. *One lecture per week with topics during the first semester; two credits.* Mr. KREMERS.

108. Advanced Qualitative Analysis. Analysis of more complex substances, also compounds containing rare elements. Prerequisite, course 1. *First semester; laboratory work accompanied by two lectures per week; two or more credits.* Mr. KRAUSKOPF.

112. Quantitative Analysis. An advanced laboratory course, being a continuation of course 11 which must precede it. Mr. LENHER.

113. Water Analysis. A laboratory course with lectures. *First semester.* Mr. FISCHER, Mr. SCHUETTE.

114. Gas Analysis. A laboratory course with lectures. *First semester.* Mr. FISCHER, Mr. SCHUETTE.

116. Industrial Analysis. A laboratory course in the analysis of commercial products. *Second semester.* Mr. FISCHER.

117. Chemical Preparations. Laboratory course in the preparation of typical inorganic compounds. *At least two periods a week.* Mr. LENHER.

118. Iron and Steel Analysis. A laboratory course in the analysis of the ores and metallurgical products of the iron industry. Mr. LENHER.

119. Proximate Organic Analysis. A course in the proximate analysis of organic products. *First semester; three credits.* Mr. FISCHER, Mr. SCHUETTE.

120. Organic Chemistry. Lectures and laboratory work. In the first semester the work will be chiefly on the aliphatic and in the second semester on the aromatic compounds. *Lectures Tu., Th.,* 8, *and six hours' laboratory work per week.* Mr. FISCHER, Mr. JONES, Mr. NEBEL.

121. Preparation of Organic Compounds. This course may be taken as a continuation of course 120. The work will consist of the preparation of typical compounds of a more advanced nature. Mr. FISCHER, Mr. JONES, Mr. NEBEL.

128. Chemistry of Alkaloids. General survey course of the chemistry of alkaloids. *One lecture a week; second semester.* Mr. FISCHER.

129. Chemistry of the Volatile Oils, including their botanical relation and assay. *Work arranged upon consultation with the instructor.* Mr. KREMERS.

130. Physical Chemistry. Lectures and recitations supplemented by laboratory exercises in physico-chemical measurements. Must be preceded by Chemistry 1. *Lectures and recitations, M., W., F.,* 11; *and laboratory work; five credits.* Mr. KAHLENBERG, Mr. MATHEWS.

131. Electrochemistry. (Given 1914–15.) Lectures and recitations twice a week. Laboratory work in electrochemical measurements supplements the lectures. *Lectures, M., W.,* 11; *five credits.* Mr. MATHEWS.

132. Thermal Chemistry. (Given 1915.) Lectures and assigned readings dealing with the thermal phenomena accompanying chemical and physical change. *Second semester; lectures W.,* 11; *and laboratory work as desired.* Mr. MATHEWS.

133. Photochemistry. (Given 1913–14.) A detailed study of the influence of light upon chemical reactions. *First semes-*

ter. Lectures M., W., 11. *Laboratory work as desired.* Mr. MATHEWS.

146. Chemistry of Foods and their Adulterations. Prerequisites, General Chemistry 1, and one semester's work each in quantitative analysis and organic chemistry. *Second semester; five credits.* Mr. FISCHER.

For Graduates

222. Research in Organic Chemistry. Students desiring to become acquainted with the methods of research in organic chemistry may take work leading to theses for higher degrees. Mr. FISCHER or Mr. KREMERS.

224. Advanced Organic Chemistry. Advanced survey. *One lecture and one conference per week.* 1913–14. Mr. KREMERS.

234. Chemical Equilibrium. The subject treated during the first semester is the phase rule. The second semester will be devoted to the study of chemical dynamics. *One lecture or recitation a week.* Mr. WALTON.

235. Advanced Physical Chemistry. (Given 1914.) Lectures on selected topics. One lecture per week. Laboratory work as desired. Mr. MATHEWS.

236. Advanced Electrochemistry. A course in the preparation of chemical compounds by means of electrolysis. *Hours to be arranged.* Mr. KAHLENBERG, Mr. MATHEWS.

237. Research in General or Physical Chemistry. Students having sufficient training may take up research work in general or physical chemistry, for which every facility is furnished. This course is especially designed for graduates seeking higher degrees. *Hours to be arranged.* Mr. KAHLENBERG, Mr. MATHEWS, Mr. WALTON.

238. Chemical Seminary. Original articles of importance in the different fields of chemistry will be studied in detail, with a view to broaden and deepen the understanding and to act as a stimulus to further research. *W.*, 4. Conducted by the members of the staff.

241. Advanced Plant Chemistry. *One lecture and one conference per week. Laboratory work to be arranged with instructor.* 1914–15. Mr. KREMERS.

242. Research work on alkaloids and the chemistry of foods. *Hours to be arranged.* Mr. FISCHER.

243. Research on volatile oils or other subjects of organic chemistry, with special reference to plant chemistry. *Hours to be arranged.* Mr. KREMERS.

251. Advanced Inorganic Chemistry. In 1915–16, a course of lectures will be given in which special attention will be directed to the discussion of modern theories of chemistry. *Tu., Th.*, 11. Mr. LENHER.

252. Inorganic Preparations. This course is preliminary for those intending to pursue research work in inorganic chemistry. *Laboratory work with one lecture or conference a week.* Mr. LENHER.

253. Research in Inorganic Chemistry. Full facilities are offered to those desiring to study systematically some of the more important problems in inorganic chemistry. Mr. LENHER.

255. Advanced Analysis. In 1914–15 a course of two lectures per week will be given on the methods used in the analysis of inorganic substances. Mr. LENHER.

COMPARATIVE LITERATURE

COMMITTEE IN CHARGE: PROFESSORS OLSON, SHOWERMAN; ASSOCIATE PROFESSOR CERF; ASSISTANT PROFESSORS DODGE (chairman), KIND.

The courses in Comparative Literature were originally planned by conference of the various language departments as one means of correlating their work. They are designed to meet two main needs. (1) That of undergraduates who have not the command of foreign languages necessary to the fundamental study of international types and movements in literature, but who may wish to secure a general understanding of some of the more important of these. (2) That of graduate students, properly equipped with foreign languages, who may wish to supplement their work in particular literatures with detailed study of special interrelations. Courses of this comparative character have not infrequently been offered, and are

being offered by the different departments. The present scheme incorporates all such as are now in existence and provides others, some of which lie entirely outside the scope of any one department.

For Undergraduates

Comparative Literature A. Masterpieces of Romance literatures in English translations. Lectures and collateral reading from the works of Dante, Petrarch, Boccaccio, Ariosto, Tasso, Cervantes, Rabelais, Montaigne, Corneille, Molière, Racine and other writers. *Tu., Th.*, 10. Mr. CERF.

For Undergraduates and Graduates

Comparative Literature 101. Ancient Classical Epic. (Omitted 1914–15.) Mr. C. F. SMITH.

Comparative Literature 102. Renaissance Epic: *Orlando Furioso, Jerusalem Delivered, The Faery Queen*, and *Paradise Lost*. The first two are read in translations. This course counts for the English major. *Second semester; Tu., Th.*, 9. (Given 1914–15.) Mr. DODGE.

Comparative Literature 103. Ancient Classical Drama. (Omitted 1914–15.)

Comparative Literature 104. Modern Classical Drama. (Omitted 1914–15.)

Comparative Literature 105. Latin and Renaissance Drama. (Omitted 1914–15.)

Comparative Literature 107. Contemporary Drama. This course attempts to explain recent movements and tendencies in the drama of the Continent and England. Plays not English are read in translation. The course counts for the English major. *Throughout the year; Tu., Th.*, 11. Mr. DICKINSON.

Comparative Literature 108. The contemporary novel. A survey of recent developments in the novel in England, France, Germany, and Russia. Foreign novels may be read in translation. The course counts for the English major. *Throughout the year; Tu., Th.*, 10. (Given 1914–15.) Mr. CAMPBELL.

Comparative Literature 110. German influences in England during the nineteenth century. German philosophy, literature, and scholarship in their bearings on English letters. *Throughout the year; Tu., Th.*, 11. (Omitted 1914–15.) Mr. LEONARD.

Comparative Literature 115. Elizabethan prose fiction in its relations with that of the continent. Romances, chivalric and pastoral, *novelle*, picaresque tales, etc. Works not English will be read in translation. The course counts for the English major. *First semester; Tu., Th.*, 9. (Given 1914–15.) Mr. DODGE.

Latin 118. Roman Satire from Ennius to Juvenal. The origin and development of formal literary satire among the Romans, with special reference to the works of Lucilius, Horace, Persius, and Juvenal. *First semester; two hours a week.* (Omitted 1914–15.) Mr. FISKE.

Comparative Literature 116. Modern Classical Satire in Italian, French, and English. From the beginnings in the sixteenth century to the close of the eighteenth. *Second semester; two hours a week.* (Omitted 1914–15.) Mr. DODGE.

For Graduates

Comparative Literature 215. Introduction to Medieval Drama. (Omitted 1914–15.) Mr. YOUNG.

Comparative Literature 218. The Renaissance in Romance Countries. *First semester*, Italian; *second semester*, French. *Two credits.* (Omitted 1914–15.) Mr. CERF.

Comparative Literature 219. Elizabethan poetry in its relations with France and Italy. *Throughout the year; two credits.* (Omitted 1914–15.) Mr. DODGE.

For description of the courses which follow, the student is referred to the various departmental announcements.

French 136. The Novel in Romance Countries. Mr. CERF.

French 243. The Old French and related versions of the Sept Sages de Rome and of Tristan et Isolt. Mr. SMITH.

French 248. The Beginnings of Medieval Literature. Mr. REED.

French 252. Medieval French Drama. Mr. SMITH.

German 138. Shakspere in Germany. Mr. KIND.

German 242. The Literary Relations of England and Germany in the Eighteenth Century. Mr. KIND.

German 243. German-American literary relations. Mr. GOODNIGHT.

German 245. Interrelations of German and French literature during the seventeenth and eighteenth centuries, with special reference to the novel. Mr. FEISE.

English 146a. The Ballad. Mr. BEATTY.

EDUCATION

PROFESSORS ELLIOTT (chairman), O'SHEA, HENMON; ASSISTANT PROFESSORS MILLER, STARCH, TRESSLER; MR. SEYBOLT, MR. CLAPP, MR. DOYLE, MRS. HOYT, MR. HOTZ.

The chief aim of the work of this department is to treat education in its history, foundations, and practice in the spirit of contemporary thought. To this end, groups of courses are offered in each of the following: (1) The historical evolution of educational ideals, institutions, and practices as a basis for the intelligent interpretation of modern American education; (2) The more important educational movements of the present day. (3) The principles of mental development in the child and the race, with particular reference to educational aims and processes; (4) Educational psychology as a basis for the principles of teaching, and of educational methods and practice; (5) Principles of education viewed in the light of contemporary biological, sociological, and psychological thought; (6) The organization, administration, and methods of supervision of public education; (7) Seminary and research courses in each of the main divisions of education, the purpose of which is to investigate and discuss in a critical manner unsolved problems in the several fields covered; (8) The observation of teaching under expert supervision.

Courses 1, 6, 11, 13, and 41 are regarded as introductory, and are the only courses which may be elected in fulfillment of the requirements for the University Teachers Certificate, except in the case of graduates of Normal Schools, who are *not* permitted to elect any of these courses in fulfillment of requirements either for a degree, or for the University Teachers Certificate. Students below the junior class are not ad-

mitted to any course in education except upon the *written* permission of the instructor in charge. This permission will be granted only to mature students and to students who are under the necessity of leaving the University to enter teaching.

Major in Education

Undergraduate students selecting education as a major subject will be required to obtain credit in approved courses amounting to twenty-two hours, inclusive of credit for thesis. Graduate students selecting education as a major will be expected to show familiarity with the general aspects of each of the divisions of education before they will be admitted to candidacy for either a master's or a doctor's degree.

Note: Students who plan to devote no more than six or eight hours to the work, are advised to elect two courses for two hours each in the junior year and complete the work in the senior year.

For Undergraduates

1. History of Modern Education. A study of the development of educational standards and institutions in Europe and America since the Renaissance. Lectures, discussions, and papers. *First semester; M., W., F.*, 8; *repeated second semester at same hour; two or three credits.* Mr. SEYBOLT.

6. Public Education. An introductory survey of the American system of public education as an expression of the ideals of democracy: organization, characteristic features, and contemporary tendencies. *Each semester; Tu., Th.*, 9; *two or three credits.* Mr. ELLIOTT.

11. Mental Development. A study of (1) the general characteristics of development; (2) the theory of recapitulation in development; (3) motor development; (4) intellectual development; (5) social development; (6) mental economy and hygiene in development. *First semester; M., W., F.*, 10. *Second semester; M., W., F.*, 9; *two or three credits.* Mr. O'SHEA.

13. Principles of Education. The foundations of educational theory viewed in the light of contemporary thought. Also practical problems of the curriculum and methods

of teaching, accompanied by observation of work in the Wisconsin High School and in the public schools of Madison. *First semester; M., W., F.,* 9. *Second semester; M., W., F.,* 10; *two or three credits.* Mr. O'Shea.

41. Educational Psychology. (a) Lectures and demonstrations. *Tu., Th.,* 11. (b) Laboratory practice parallel with lectures. *One laboratory period of two hours a week at hours to be arranged.* An introductory course in psychology is prerequisite for this course. *First semester; and repeated in the second semester; two or three credits.* Mr. Henmon, Mr. Starch.

For Undergraduates and Graduates

103. History of American Education. Democratization of American education; evolution of, (1) educational institutions, (2) the curriculum, (3) purposes and methods of educators, (4) the teaching profession. Prerequisite, course 1 or 13. *Second semester; Tu., Th.,* 11; *two credits.* Mr. Seybolt.

104a. State School Systems. A study of the principles of organization, and of the typical agencies for the administrative control of American state educational systems. Prerequisite, course 1, 6, or 13. Open to graduates of normal schools. *First semster; Tu., Th.,* 10; *two or three credits.* Mr. Elliott.

104b. Municipal School System. A study of the organization, administration, and supervision of public education in American cities. Special attention to contemporary problems and to the development of supplmentary agencies in public education. Prerequisite, course 1, 6, 13, or 104a. Open to graduates of normal schools. *Second semester; Tu., Th.,* 10; *two or three credits.* Mr. Elliott.

105. European School Systems. A comparative study of the educational systems of Germany, France, and England, with special emphasis upon international relationships and those features possessing significance for American education. Prerequisite, course 1 or 6. Open to graduates of normal schools. *First semester; Tu., Th.,* 1:30; *two credits.* Mr. Elliott.

112. Social Development and Education. The social nature of pupils at different periods of development, together with a study of methods of managing individuals and groups in the schoolroom, on the playground, etc., so as to make them socially efficient. Prerequisite, course 11 or 13. Open to graduates of normal schools. *Throughout the year; Th.*, 1:30 *to* 3:30; *two credits each semester.* Mr. O'Shea.

115. Contemporary Educational Movements. Special subject for 1913–1914: The objects, methods, and influence of certain modern American and European schools representing advanced educational practices. Prerequisite, course 1, 6, or 13. *First semester; Tu., Th.*, 11; *two credits.* Mr. Seybolt.

116. Educational Classics. Considered, (a) as interpretations and criticisms of educational practices in various periods of history, and, (b) as presentations of theory related to present-day education. Readings in Plato, Quintilian, Locke, Rousseau, and others. Prerequisite, course 1, or equivalent. *Second semster; Tu., Th.*, 8; *two credits.* Mr. Seybolt.

118. History of Modern European Education. Development of institutions, curricula, and methods in Germany, France, and England since the Middle Ages. Prerequisite, course 1, or equivalent. *First semester; Tu., Th.*, 8; *two credits.* Mr. Seybolt.

142. Experiments in Educational Psychology. A systematic laboratory course dealing with educational problems, mental and physical tests. An introductory course in psychology is prerequisite. *Each semester; lecture, Tu.*, 2:30; *laboratory hours to be arranged; one credit, or by permission, two credits.* Mr. Starch.

143. Mental Tests. A laboratory course in the methods and technique of mental tests, including practice in making mental tests and measurements upon school children. *Throughout the year at hours to be arranged.* Mr. Starch.

For Graduates

214. Genetic Psychology. The psychology of development in respect to some of the principal types of educational work. Prerequisite, course 11, 13, 41, or 217. Open to graduates of normal schools. May be elected successively, for the subject matter of the course is changed annually. Given alternately with course 217. *W.*, 7 *to* 9 P. M. (Omitted 1914–15.) *Two credits.* Mr. O'SHEA.

217. Educational Values. A detailed inquiry concerning the values of studies and methods in present-day American education. Given in alternate years with course 214. (Given 1914–15.) Prerequisite, course 11, 13, 41, or 214. Open to graduates of normal schools. *W.*, 7 *to* 9 P. M.; *two credits each semester.* Mr. O'SHEA.

220. Seminary in Education. The investigation and discussion of current educational problems. Each member is required to undertake a piece of research, and report upon it during the year. Prerequisite, course 11, 13, 112, or 214. Open to graduates of normal schools. *Hours to be arranged.* Mr. O'SHEA.

232a. Seminary in Administration and Supervision of Education. Special subject for 1913–1914: School Inquiries and Educational Commissions. A study of recent investigations of state and city school systems; methods, scope, and results. Open to graduates of normal schools. *Tu.*, 7:30 *to* 9:30 P. M.; *one or two credits.* Alternates with 232b. (Omitted 1914–15.) Mr. ELLIOTT.

232b. Practicum in Educational Legislation. A study of contemporary legislative movements with special reference to public education—elementary and secondary; legislative procedure and the preparation of measures. Given in alternate years in coöperation with the State Legislative Reference Department. *Tu.*, 7:30 P. M. Alternates with 232a. (Given 1914–15.) Mr. ELLIOTT, Mr. MCCARTHY.

233. Supervision of Instruction. The principles, methods, and problems of the supervision of instruction, with special reference to elementary and secondary schools of smaller cities. Special reports on basis of observation and study

of instruction in the Wisconsin High School and in typical elementary and secondary schools. Prerequisite, courses 6 or 13 or 104b. Open to graduates of normal schools. *Second semester; Tu., Th.*, 1:30; *two or three credits.* Mr. ELLIOTT.

244. Advanced Educational Psychology. The work of the first semester treats of individual differences, mental inheritance, and the correlations of mental abilities; that of the second semester treats of the psychology of learning, economy in mental work, and mental hygiene. *Throughout the year; may be elected by semesters; Tu., Th.*, 1:30; *two credits.* Mr. HENMON.

246. Experimental Education. A study of the experimental investigation of the teaching of school subjects and the results of recent investigation of school problems. *First semester; hours to be arranged; two credits.* Mr. HENMON.

248. Seminary in Educational Psychology. Assigned topics and reports on recent experimental studies and researches in educational psychology. *Throughout the year; on alternate Wednesdays, 4 to 6.* Mr. HENMON.

University Teachers Certificate

For the courses in education which may be taken in fulfillment of the requirements for the University Teachers Certificate, see Index under Teachers Certificate.

ENGLISH

PROFESSOR HUBBARD (chairman); ASSOCIATE PROFESSORS DICKINSON, LATHROP, PYRE, YOUNG; ASSISTANT PROFESSORS BASSETT, BEATTY, CAIRNS, CAMPBELL, DODGE, LEONARD, MOORE, ROE, WOOLLEY; DR. ALBRIGHT, MR. BONNELL, MISS CAMPBELL, MISS CARR, MISS FIFIELD, MR. FOERSTER, MR. GARDNER, DR. MANCHESTER, MRS. FULCHER, MR. OWEN, MR. SPEARE, MR. TAYLOR, MISS WALES, DR. WATT; MISS HALL.

PROFESSOR GEORGE E. WOODBERRY, Lecturer in English Literature.

GENERAL STATEMENT

The courses of the department are intended to serve five main purposes: (1) to train students in the use of English as a means of expression and communication for the ordinary demands of social, commercial, and professional life; (2) to continue that training to suit the special needs of those who intend to take up journalistic or literary work; (3) to develop the literary sympathy and appreciation and to extend the knowledge of those who find in English and American literature the readiest means of obtaining the advantages of a liberal education; (4) to prepare teachers of English for school and college work; (5) to fit students for and assist them in scholarly investigation. Most of the courses will be found to meet all of these ends, directly or indirectly, but some are specially directed to one or two in particular. Every student is encouraged to select the courses most suited to his or her own needs, but certain courses are prescribed as necessary for due equipment in particular lines of work.

Undergraduate Courses

All students in the colleges of Letters and Science, Engineering, and Agriculture are required to take Freshman English. The General Survey is regarded as a necessary preliminary to the other literature courses, and should, therefore, be taken in the sophomore year by those who think of making English their major study in the junior and senior years; this course (30) is also recommended for those who desire a general knowledge of English literature, but are unable to carry their study of the subject further.

Students taking English as an elective course outside of the major study are advised to select courses mainly from the undergraduate group. Those who make English their major study, after providing for the required courses, may choose at will from this or the following group (for undergraduates and graduates).

SENIOR HONORS IN ENGLISH

Candidates for senior honors in English have a choice between two courses of reading:—

(a) Chaucer: *Troilus and Criseyde.*

(b) Alexander Pope: Complete Works (including the translation of Homer.)
John Ruskin: *Praeterita.*
Modern Painters.
William Morris: *The Earthly Paradise.*

Candidates who choose (a) will be expected to render at sight normal passages of the text assigned and to answer such questions of metrical, linguistic, and historical significance as might reasonably be dealt with in a brief critical introduction.

Candidates who choose (b) will be expected to show that they possess a sound general knowledge of the substance of the works assigned and such information concerning the history and significance of each as may be necessary to a general understanding of its place in English literature.

Candidates in either course will be tested at the close of the year by a three-hour written examination.

English as a Major Study

Students intending to choose English as their major study are strongly recommended to take General Survey (30) in their sophomore year.

At the beginning of their junior year, they should consult the head of the department, who will assign them to an adviser for help in the choice of courses and general direction of their studies. They are required to take, in addition to

the thesis, twenty-four credits as a minimum, exclusive of course 1 (required of all students). Course 30 must be included. A total of thirty-six credits, in addition to the thesis and course 1, may be taken. No courses in public speaking except 5a, 5b, and 11 may be taken as part of the major work in English.

Students who are not candidates for the teachers' certificate are free to choose any courses they wish after satisfying the requirements of Freshman English and General Survey.

Candidates for the degree of Ph. B. choosing English as their major subject are required to fulfill the same conditions as obtain for the B. A. degree.

For Teachers

Candidates for the teachers' certificate choosing English as their major are required to take, in addition to the thesis, twenty-four credits as a minimum, exclusive of course 1 (required of all students). Courses 30, 120a, and 50 (a and b) must be included. A total of thirty-six credits, in addition to the thesis and course 1, may be taken. Students who have had an adequate training in Latin or Greek may substitute some other English course for 120a; and any student may substitute courses 123 and 25 for 120a with the approval of his adviser.

Those choosing English as their minor are required to take, in addition to course 1 (required of all students), course 30; 50a, and an advanced composition course to be taken in the sophomore or junior year (2, 3, 5, or 6); and one of the following groups: (a) 34 and 35; (b) 36 or 137; (c) 40.

Library Work

English literature is an important part of the sound general education which forms the best foundation for success in library work, and its relation to the more specific needs of the profession is obvious. Students who take the joint course arranged at the University and the State Library School may, therefore, find it to their advantage to choose English as their major study. Of the twenty hours of library work for which credit is given by the University four may be counted towards an English major if the candidate so desires, reducing the minimum departmental requirement to thirty credits. In addition

to courses 1 and 30, which are required of all, library students are recommended to select courses of a more general character from the group primarily for undergraduates, especially 34, 35, 36 or 137, 39, 40, and 146a. For detailed information in regard to preparation for library work, see Index under Library Training and a special bulletin entitled Courses in Library Training.

Preparation for Journalism

As the study of English is an important part of training for journalism, students preparing themselves for this profession may find it to their advantage to take English as their major. For students taking English as a major in preparation for journalism the only required courses are 1 and 30; a maximum of ten units for professional courses in journalism may be credited towards the major. Other English courses considered advantageous for journalistic work are those in composition (1, 2, 3, 5, 6), prose style (38), American literature (40), Nineteenth Century literature (34, 35), English drama (36, 137), and the novel (39). The technical instruction given in the courses in journalism includes (a) theory and practice of journalistic methods, (b) history and development of the American press, and (c) organization and management of a modern newspaper, together with a series of special lectures on various phases of journalistic work, given by newspaper men in active service. The students in the classes in journalism edit the Daily Cardinal as a part of their practical work. For detailed information as to the courses in preparation for journalism, and the major in journalism, see Index under Journalism and a special bulletin for 1912–1913 entitled, "The Course in Journalism."

The M. A. Degree

Candidates for the degree of Master of Arts who intend to take one-half or more of their work in English should consult the chairman of the department as to the courses most suitable to their purpose. They are required to show that they have had sufficient preliminary training in English language and literature to undertake graduate work, or to complete such preliminary training in addition to the graduate

work required; if they have not taken an undergraduate course in English language, they will be required to take at least three hours in that subject, but this requirement may be satisfied by an adequate training in Greek and Latin. They are expected to take at least two unit-hours each semester from the courses restricted to graduates.

M. A. in Absentia

The advanced study required for the M. A. *in absentia* in this department consists of two graduate courses taken in each of three consecutive summer sessions, with work done in continuation of one of the two courses each year. Particulars may be obtained from Professor Arthur Beatty, Secretary of the Department.

The Doctor's Degree

Special requirements for the doctor's degree (English major) are:

1. The general history of English Literature.
2. Anglo-Saxon and Middle English.
3. Special knowledge of the particular field chosen for study.
4. Reasonable acquaintance with the political and social history of that period.
5. Auxiliary studies, varying according to the particular field chosen. For example: for the sixteenth century, Latin, Italian, German, and French; for the classical period, Latin and French; for the romantic period, and for the nineteenth century, French and German.
6. A thesis and examination as explained above.

RHETORIC AND COMPOSITION

For Undergraduates

A. English Composition for students who have failed to pass the test prescribed on page 108. *Three hours a week; no undergraduate credit.* Mr. WOOLLEY, Miss WALES, Miss HALL.

1. Freshman English. English prose style. Composition. The elements of effective writing in prose, based upon direct study of selected authors, with training in composi-

tion. On the completion of course 1, a provisional pass mark, is given; if at any time later in his course, a student is reported deficient or careless in English composition, he may be required to take additional work in that subject. *Throughout the year; three credits. Forty sections. For hours and rooms see time table of required studies.* Required of freshmen in the colleges of Letters and Science, Agriculture, and Engineering. Chairman of Freshman Conference, Mr. YOUNG.

2. Sophomore Composition. Elective for students who have finished the required English for the freshman year. *Throughout the year; Tu., Th.*, 8, 9, 10, 11, and 1:30. Five sections. Chairman of Conference, Mr. TAYLOR.

3a. Argumentation. Theory and practice of argumentation, combining and applying the principles of logic and rhetoric; analysis, evidence, forms of argument, fallacies, refutation, brief drawing. Open to all students except freshmen. *First semester; M., W., F.*, 10, 11, and 2:30. Mr. O'NEILL.

3b. Argumentative Addresses. Continuation of 3a. Practice in careful investigation, collecting and testing evidence, brief drawing, and the composition of three or more argumentative speeches of about 2,000 words each. Prerequisite, 3a. *Second semester; Tu., Th.*, 2:30. Mr. O'NEILL.

4. Commercial Correspondence. Its varieties and principles. *Taken for credit only as part of a technical course. Second semester; Tu., Th.*, 1:30. Mr. GARDNER, Mr. WATT.

4a. Advanced Commercial Composition. Prerequisite, good work in course 4. The writing of longer pieces, such as business booklets. *Taken for credit only as part of a technical course. First semester; Tu., Th.*, 10. Mr. GARDNER.

5. Advanced Sophomore Composition. A course which lays somewhat more emphasis on advanced literary composition than does course 2. Open to all students (including sophomores) who have received a grade of at least 85 in Freshman English, and to juniors and seniors who have had English 2. *Throughout the year; Tu., Th.*, 9. Mr. DICKINSON.

6. Advanced Composition. Elective for juniors and seniors. *Throughout the year; Tu., Th.*, 11; *and a third hour to be arranged.* Mr. DODGE.

107. Narration. Narrative composition, based mainly on the study of the short story, with exercises in technique and criticism. Ordinarily open only to juniors and seniors who have taken one composition course in advance of English 1. *Throughout the year; Tu., Th.*, 2:30. Mr. CAIRNS.

108. Dramatic Writing. A course in the theory and practice of writing plays. As a prerequisite to admission, candidates are expected to submit an acceptable scenario. Early conference with the instructor is desirable. *Throughout the year; M.*, 2:30 *to* 4:30. Mr. DICKINSON.

9. Technical Composition. An advanced course in technical writing with a study of scientific and technical models. Elective for juniors and seniors in the College of Engineering who have had English 1. *Second semester; hours to be arranged.* Mr. WATT.

10. Essay Writing. A study of the expository article, the informal essay, and the critique; members of the course may, if they so desire, confine their writing to one of these forms. Open to students who are eligible for course 5. *Second semester; Tu., Th.*, 10. Mr. FOERSTER.

For Graduates

217. The Teaching of English Composition. A course of lectures on the pedagogic and executive principles involved in teaching composition. *Second semester; F.*, 3:30 *to* 5:30. Mr. HUBBARD.

ENGLISH LANGUAGE AND LITERATURE

For Undergraduates

25. The English Language. An elementary study of the development of the English language, with special reference to matters significant for the interpretation of literature. Open to sophomores, juniors, and seniors. *First semester; M., W., F.*, 9. Mr. HUBBARD.

28. Lectures on Literary Genius. This course has literary genius for its general subject, and in particular will present some of its types, ascertain some of its methods, and fix and rate some of its values. Principles will be set forth in the main, and the illustration will be drawn for the most part from English poetry of the last century. *Second semester; Tu., Th.*, 4:30. *One or two credits.* (Given 1913–14.) Mr. WOODBERRY.

29. English Life and Letters. Illustrative course in two parts, designed to accompany English 30. May be taken as a separate course. Attendance and examination. *Throughout the year; Tu., Th.*, 11. *One credit each semester.*

English Life illustrated by means of lantern slides. *Tu.*, 11. Mr. BEATTY.

Illustrative reading, *Th.*, 11. Mr. PYRE.

30. General Survey of English Literature. This course consists of two parts: (1) lectures on the history of English literature from the earliest times to the end of the nineteenth century; and (2) a careful study in small tutorial groups of the works of representative authors of each period. As an introduction to the study of English literature, this course is prerequisite to all other courses in English. It is required of sophomores taking English as their major, and it is recommended to students desiring a single course in English literature.

Section 1, *M., W., F.*, 8. Mr. DICKINSON. *Section* 2, *M., W., F.*, 9. Mr. YOUNG. *Section* 3, *M., W., F.*, 10. Mr. PYRE (Chairman of Conference). *Section* 4, *M., W., F.*, 2:30. Mr. ROE.

The tutorial groups meet every Monday and Wednesday at the regular class hour.

31. Chaucer. As many of the Canterbury Tales are read as time allows. The Parliament of Foules and the Prologue to the Legend of Good Women are also read. *First semester; M., W., F.*, 10. Mr. BEATTY.

34. The Romantic Movement. Lectures and collateral reading upon the earliest phases of the movement from Thomson to Blake are followed by particular study of representative poetical works of Wordsworth, Coleridge, Byron, Shelley, and Keats. *First semester, M., W., F.*, 10. Mr. CAMPBELL, Mr. GARDNER.

35. The Victorian Era. This course is a continuation of 34, and is similar in method. The works for particular study are those of Tennyson, Browning, Rossetti, Arnold, Morris, and Swinburne. *Second semester; M., W., F.*, 10. Mr. CAMPBELL, Mr. GARDNER.

36. Elizabethan Drama. A study of English dramatic literature from the beginning to the year 1642. Lectures and assigned reading. *Throughout the year; M., W., F.*, 11. Mr. PYRE.

For Modern Drama, see Comparative Literature, course 107.

38. Prose Style. A course in the history and development of English prose style from John Dryden to the writers of the present day. Emphasis will be laid on the study of form rather than of content. *Throughout the year; Tu.*, Th., 11. Mr. TAYLOR.

39. The Novel. (1) Introduction; the principles of prose fiction; (2) the English novel from Defoe to George Eliot. *Throughout the year; Tu., Th.*, 10. Mr. LATHROP.

For Contemporary Novel see Comparative Literature 108.

For Elizabethan Prose Fiction see Comparative Literature 115.

40. American Literature. A general survey of literary writings in America. One hour a week will be devoted to lectures; during the second hour the class will meet in smaller groups for the study of selections from the works of representative authors. The course should be preceded or accompanied by course 30. *Throughout the year; Tu., Th.*, 9 *and* 10. Mr. CAIRNS.

48. The Literary Aspects of the English Bible. This course includes a general view of the influence of the translations of the Bible on the language and literature of England, and a study of representative portions of the Old Testament prose narrative and lyric poetry. *Second semester; M., W., F.*, 11. Mr. LATHROP.

50a. The Teaching of English. This course presents the aims, methods, and organization of the English work for the first two years in high school, with special emphasis on the teaching of composition; it includes practice work in the correction of themes. *Three sections. Second semester; M., W.*, 8, 1:30 *and* 2:30. Mr. BASSETT.

50b. The Teaching of English. This course deals with the work of the third and fourth years, with special emphasis on the teaching of literature; it includes a study of the classics used in high school reading. *Three sections. First semester; M., W.*, 8, 1:30 and 2:30. Mr. BASSETT.

Observation of teaching is required in each course. 50a and 50b are required of all candidates for the teachers' certificate (English major); an advanced composition course (to be taken in the sophomore or junior year) and 50a are required of all candidates for the minor teacher's certificate in English.

54. Victorian prose writers. Carlyle, Ruskin, Newman, and Arnold. Critical analysis and discussion of representative pieces, with supplementary lectures and papers. *Throughout the year; Tu., Th.*, 9. Mr. ROE.

SENIOR THESIS COURSES

In accordance with the regulations as to substitutes for the senior thesis (Catalogue, p. 135) the department offers courses (restricted to seniors who have elected English as their major study), in which students meet one hour a week in groups of not more than ten for intensive study of particular authors or subjects, written reports being handed in from time to time on topics assigned by the instructor in charge. A list of the instructors offering such courses and of the subjects is given below.

a. Arthurian Romance. Miss CARR.
b. Shakspere. Mrs. FULCHER.
c. Shakspere. Mr. WATT.
d. Milton. Mr. GARDNER.
e. Arnold. Mr. MANCHESTER.
g. Meredith. Mr. CAMPBELL.

Throughout the year; W., 2:30; *four credits.*

Students wishing to take any of the above courses should consult Mr. Campbell, Chairman of the Thesis Committee of the department.

For Undergraduates and Graduates

120a. Anglo-Saxon. This course is designed to furnish a basis for the more advanced study of English philology, and to give an introduction to the history of the English language. *First semester; M., W., F.*, 9. Mr. LEONARD. Mr. MOORE.

120b. Middle English. A continuation of course 120a. The historical development of English is traced, and the general principles of linguistic science are illustrated. *Second semester; M., W., F.*, 9. Mr. MOORE.

123. Modern English Grammar. The facts of modern English grammar are considered in the light of the historical development of the language, the general principles of linguistic science, and the psychology of speech. *Second semester; M., W.*, 9. Mr. HUBBARD.

122. Beowulf. The whole poem is read critically; its relation to the literature of other Germanic languages is considered. As far as possible, the course is made to serve as an introduction to the study of old Germanic life. Open to seniors. *Second semester; M., W., F.*, 2:30. Mr. LEONARD.

121. Anglo-Saxon Poetry. Especial attention is given to the lyric and epic poems that are least affected by christianity. *First semester. M., W., F.*, 2:30. Mr. MOORE.

137. Shakespere. A short review of the political, social, and literary conditions of the Elizabethan age is followed by a careful study of selected plays. Recommended to students who intend to teach Shakespere in high school. *Throughout the year; M., W., F.*, 11. Mr. HUBBARD, Mr. MANCHESTER.

141. Tennyson. Tennyson's development as a literary artist is studied in his vocabulary, verse-form, and subject-matter. The poet's attitude to science, religion, and art is also considered. *Second semester; Tu., Th.*, 9. Mr. BEATTY.

142. Versification. The student is presented with a working theory, after which the course proceeds with the history of English verse forms and the analysis of particular compositions. *Second semester; Tu.*, 1:30 *to* 3:30. Mr. PYRE.

144. Wordsworth. Wordsworth and his relations to the general European revolutionary movements; his theories of poetry, and his development as a poet. *Second semester; M., W., F.*, 10. Mr. BEATTY.

145. Browning. This course aims, through a careful reading of Browning's poetry, to bring into relief his characteristic methods and moods, and his outlook on life. *First semester; Tu., Th.*, 11. Mr. FOERSTER.

146a. The Ballad. A study of the English and Scottish popular ballads in connection with their European and other analogues in popular ballad and tale. The results obtained will be applied to the problem of the origins of poetry. *First semester; Tu., Th.*, 9. Mr. BEATTY.

146b. Literary Criticism. English Literary criticism of the nineteenth century, its origins, and development. Coleridge, Hazlitt, and Arnold will be centers of study. *Second semester; Tu., Th.*, 9. (Omitted 1914–15.) Mr. BEATTY.

147b. Literary Criticism. This course consists of practical demonstrations by the students of the art of criticism in its various phases, *i. e.*, of understanding, appreciating, and judging an author's work of the first quality. *Second semester; M., W., F.*, 10. (Given 1913–14.) Mr. WOODBERRY.

153. Philosophy in the English Poets. An interpretation of the thought of the most significant men from Wordsworth to Meredith; their relations to philosophic systems; their answers to the problems of life. *Throughout the year; Tu., Th.*, 11. Mr. LEONARD.

155. Emerson. A study of Emerson's interpretation of life as expressed in his chief writings. Some attention will also be given to his relation to the intellectual and social movements of his time. *Second semester; Tu., Th.*, 11. Mr. FOERSTER.

156. Elizabethan Poetry. A few characteristic poems will be studied in some detail, but for the most part the work will consist of reading with occasional papers. *First semester; Tu., Th.*, 10. (Omitted 1914–15.) Mr. DODGE.

157. Milton. Students will be expected to read all of Milton's poetry and some of his more important works in prose. The course is designed to give them as thorough an ac-

quaintance as possible with his work as a whole. *Second semester; Tu., Th.*, 10. (Omitted 1914–15.) Mr. DODGE.

158. The Age of Dryden. This course deals in some detail with Dryden, and in a more cursory way with the chief contemporary poets, prose writers, and dramatists. Some of the prose writers of the first part of the eighteenth century are also taken up. *First semester; M., W., F.*, 2:30. Mr. LATHROP.

159. The Age of Pope. This course continues course 158, with special attention to Pope, and includes a general view of English literature to the French revolution. *Second semester. M., W., F.*, 2:30. Mr. LATHROP.

For Renaissance Epic, see Comparative Literature 102.

For Graduates

219. Critical Bibliography of English Literature. (Omitted 1914–15.) *First semester; M.*, 3:30.

224. English Philology Seminary. Critical study of texts; historical grammar; dialects. The work is varied from year to year. The subject for 1914–15 will be Problems of English Grammar. *Throughout the year; Tu., Th.*, 10. Mr. HUBBARD.

243a. Introductory Seminary in English Literature. Subject for 1914–15. Chaucer. *Throughout the year; Th.*, 3:30 *to* 5:30. Mr. YOUNG.

244. Seminary in English Literature. Subject for 1914–15: Problems of Authorship in the Plays of Beaumont, Fletcher, and Massinger. *Throughout the year; Tu.*, 3:30 *to* 5:30. Mr. PYRE.

247. Seminary in American Literature. Subject for 1913–14: First semester, Poe; second semester, Whitman. Subject for 1914–15, American Prose Fiction; The Development of the novel and the short story in America from Charles Brockden Brown to William Dean Howells, with especial stress on three or four selected authors. *Throughout the year; W.*, 3:30 *to* 5:30. Mr. CAIRNS.

For Modern Classical Satire and French and Italian Influences in Elizabethan Poetry, see Comparative Literature 116 and 219 respectively.

FINE ARTS

PROFESSOR SHOWERMAN.

1. A General Survey of the Fine Arts. An illustrated lecture course on architecture, sculpture, and painting from classical antiquity through the Renaissance. *First semester; M., W., F.*, 2:30. Mr. SHOWERMAN.
2. Classical Art. A survey of the fine arts in Greek and Roman antiquity, with lectures to connect the ancient with the modern. Illustrated. *First semester; Tu., Th.*, 2:30; *two credits.* (Omitted 1914–15.) Mr. SHOWERMAN.

FORESTRY

MR. TIEMANN.

For Undergraduates and Graduates

101. Forestry and Utilization of Wood. This course is intended primarily for students who desire to get a broad knowledge of forestry particularly in its relation to conservation of resources and the utilization of wood, but who do not intend to specialize in technical forestry or follow the subject for a vocation. The course does not supply the need of students desiring to take up the study of forestry for a profession. Such students should enter one of the regular forest schools.

This course is given in the College of Letters and Science by members of the staff of the Forest Products Laboratory of the United States Forest Service. *First semester; Tu., Th.*, 11; *two credits.*

For further information see separate circular, No. 587.

GEOLOGY

PROFESSORS LEITH (chairman), WINCHELL, BLACKWELDER; ASSOCIATE PROFESSORS MARTIN, WHITBECK; ASSISTANT PROFESSORS MEAD, STEIDTMANN; MR. WILLIAMS, MR. BEAN, MR. FINCH, MR. MEHL, MR. JAY, MR. TANTON.

Physics, chemistry, and mineralogy are required of all who make geology a major study, excepting students taking major in geography. These subjects should be taken either before or during the first year's course in geology. They are also desirable for students taking geology not as a major. Students lacking chemistry or physics will be allowed to enter course 1 only by special arrangement with the instructor. Such students are advised to take course 4, physical geography, or course 2a, short course in geology.

Students entering courses in mineralogy as a training in science should have a general knowledge of chemistry, at least equivalent to that derived from a high school course. No other preliminary courses are required.

Courses 105 and 108 to 132 are advanced courses, adapted for students who have had at least one full year in the department of geology and for graduates.

For major in geography, twenty-three credits in the department of geology are required, plus three credits in meteorology, plus thesis in geography (four credits) making thirty credits in all. In addition part or all of ten credits more are desirable, preferably made up from the geological courses listed under geology and such courses as Meteorology 1 to 106; Political Economy 7; Astronomy 1; Political Science 119; Agricultural Economics 1; Soils 1 and 125; History 111 and 148; Hydraulic Engineering 110; Topographic Engineering 1, 106, and 109; etc.

The requirements in geography in connection with the University Course for the Training of Teachers are as follows: for teacher's certificate in *physiography and geography as a major subject*, at least twenty credits, plus teacher's course. Students must take at least twenty credits made up from the courses in the geological department, or Meteorology 1, or Political Economy 7, plus the teachers' course, Geology 110, two credits; for *physi-*

ography and geography as a minor subject, at least ten credits, plus teachers' course. Courses 4 (throughout the year), ten credits, and 110 (one semester), two credits, are required, but additional courses are desirable.

For Undergraduates

1. General Geology. The materials of the earth, its structure, the processes of change at work upon and beneath the surface, and the history of the earth with its plant and animal inhabitants. Followed by a study of the geology of the United States by districts. The last two months in the spring devoted entirely to field study of the geology of a small district near Madison. This part includes a two days' trip to Devil's Lake. Some knowledge of physics and chemistry is required. *Throughout the year; M., Tu., W., Th., F.*, 11; *five credits a semester.* Mr. BLACKWELDER.

2a. Short Course in Geology. An elementary course for those who wish a brief survey of the field of general geology. Three days of field work required. *Second semester; Tu., Th., S.*, 9. Mr. STEIDTMANN.

3. Laboratory Course in Geography. Laboratory and field work in physiography and geography, as in Geology 4. Prerequisite, Geology 1 or 4a. *Hours to be arranged; two credits a semester.* Mr. MARTIN, Mr. WILLIAMS, Mr. BEAN, Mr. FINCH, Mr. JAY.

4. Physiography and Geography. The lands, the atmosphere, and the oceans. Illustrated by regional studies of the physiographic and topographic provinces of the United States, and by a review of the regions of the world. *Lectures, M., W., F.*, 9; *three laboratory periods and one quiz section at hours to be arranged; five credits a semester.* One all-day excursion (Saturday) in fall and spring to Blue Mounds and to the Dalles of the Wisconsin. Mr. MARTIN, Mr. WHITBECK, Mr. WILLIAMS, Mr. BEAN, Mr. FINCH, Mr. JAY.

4a. Physical Geography for Commerce students. This course embraces the essential principles of course 4, with a sufficient treatment of the physiography of the United States to prepare the student for Economic Geography. May be

taken by others than Commerce students only by special arrangement. *First semester; one lecture, Th.*, 1:30; *and three recitations a week; M., W., F.*, 10, *and additional hour to be arranged; three credits.* Mr. WHITBECK, Mr. WILLIAMS, Mr. BEAN, Mr. FINCH, Mr. JAY, Mr. TANTON.

4b. Economic Geography. A general survey of the geography of the commercial nations, excluding the United States, with emphasis upon the leading causes which underlie their industrial and commercial activities. Course 4 or 4a prerequisite. *Second semester; one lecture and three recitations a week; M., W., F.*, 10 *and additional hour to be arranged; three credits.* Mr. WHITBECK, Mr. WILLIAMS, Mr. BEAN, Mr. FINCH, Mr. JAY, Mr. TANTON.

6. General Mineralogy. An elementary study of crystallography, and physical and chemical mineralogy with descriptions of important minerals and laboratory work in blowpipe methods and determinative mineralogy. *First semester; lectures, M., W., F.*, 8; *laboratory, Tu., Th.*, 1:30 *to* 3:30. *Second semester; lectures, Tu., Th.*, 8; *laboratory, M., W., F.*, 1:30 *to* 3:30; *five credits a semester.* Mr. WINCHELL, Mr. STEIDTMANN.

7. Short course in Mineralogy. The principles of mineralogy and crystallography applied to the commonest minerals and to the most important ore minerals. *First semester; M., W., F.*, 3:30. Mr. STEIDTMANN.

8. Short course in Petrology. Chemical and mineralogical characteristics, the identification, and origin of rocks. *First semester; M., W., F.*, 1:30; *three credits.* Mr. STEIDTMANN.

9. Animals of the Past. A general survey of the evolution of animals and plants in the course of the earth's history. No prerequisites. *Second semester; Tu., Th., S.*, 8; *three credits.* Mr. MEHL.

13. Agricultural Geography. A discussion of the geographic conditions which influence agricultural production. The world distribution of groups of agricultural products and forms of agricultural industry, studied in the light of these conditions. *Second semester; three credits; M., W., F.*, 2:30. Mr. FINCH.

For Undergraduates and Graduates

105. Regional Geography. Description of a region and the geology, topography, physiographic history, climate and resources of the several parts; influence of geographical conditions on manner of life, industries, cities, and historical events. *First semester;* the Geography of North America; *second semester:* the Geography of Wisconsin. Prerequisite, Geology 4, or 1, or an equivalent, *M., W., F.*, 8; *three credits a semester.* Mr. WILLIAMS, Mr. BEAN.

108. Petrology. A review of the principles of optics as applied to the polarizing microscope is followed by the microscopic study of the important minerals and rocks. Prerequisite, course 6. *Throughout the year; M., Tu., W., Th., F.*, 10 *to* 12; *five credits a semester.* Mr. WINCHELL.

109a. Glaciers and Glaciation. A study of existing glaciers and of the work performed by ice in regions formerly glaciated. Special illustrations from Alaska and Wisconsin. Prerequisite, Geology 4 or 1, or an equivalent. *First semester; Tu., Th.*, 9; *two credits.* Followed by second semester course on Advanced Glacial Geology in years when elected by ten students. Mr. MARTIN.

109b. Advanced Physiography. The physical geography of the lands, involving both topical and regional study of processes and topographic features. Prerequisite, Geology 4 or 1, or an equivalent. *Tu., Th.*, 10; *two credits a semester.* Mr. MARTIN.

110. The Teaching of High School Geography. Includes both subject-matter and methods. Considers (1) the aims in teaching geography in the high school; (2) the phases of the subject which deserve emphasis; (3) materials for the teacher's use; (4) field and laboratory work. Prerequisite, Geology 4 or an equivalent. *First semester; repeated in second semester only in case twelve or more persons register; Tu., Th.*, 11; *two credits.* Mr. WHITBECK.

111. Economic Geology. Alternates with Geology 115 given 1914–15. Excursions are taken to iron, copper, lead, and zinc districts accessible from Madison. Chemistry 1, Mineralogy 6 or 7, and Geology 1 are prerequisites for

this course. *Throughout the year; M., W., F.*, 3:30; *three credits each semester.* Mr. LEITH, Mr. MEAD.

112. Historical Geology. The larger facts of the earth's history and the principles involved in its interpretation. Should follow course 121. *Second semester; M., Tu., W., Th., F.*, 9. (Omitted 1914–15.) Mr. BLACKWELDER, Mr. MEHL.

113. Oceanography. A general course on the oceans, emphasizing their contrast with and effects upon the lands, the geographical aspects of the distribution of ocean life, and the relationship between certain of the ocean deposits and the rocks of the earth's crust. Prerequisite, Geology 4 or 1, or an equivalent. (Given 1914–15.) *Second semester; Tu., Th.*, 9; *two credits.* Mr. MARTIN.

114. Principles of Structural Geology. The behavior of rocks under fracture and flow. This course is offered in three parts: (a) Lectures, *Tu., Th.*, 3:30; *first semester; two credits.* Mr. LEITH. (b) Map interpretation. This is essentially indoor field work, *two periods per week, first semester, hours to be arranged.* Mr. BLACKWELDER. (c) Experimental study of the behavior of rocks under fracture and flow. *W.*, 1:30, *first semester; one credit.* Mr. MEAD. The three parts of the course in structural geology are so inter-related that it is desirable for the student to take all of them. However, parts (a) and (b) may be taken independently.

115. Metamorphic Geology. A general survey of the field of metamorphism, emphasizing its quantitative treatment. Given 1913–14 and in alternate years. *Throughout the year; M., W., F.*, 3:30; *three credits.* Mr. LEITH, Mr. MEAD.

116. Metamorphic Laboratory. Quantitative study of the processes of ore deposition and metamorphism dealt with in courses 111 and 115. *Throughout the year; Tu., Th.*, 1:30 *to* 3:30; *two credits.* Mr. MEAD.

117. Principles of Pre-Cambrian Geology. This course treats of the pre-Cambrian stratigraphy of North America. U. S. Geological Survey specimens and slides from all the principle areas of pre-Cambrian rocks of North America are available for study. Alternates with course 118. Given 1913–14 and in alternate years. *Second semester; Tu., Th.*, 3:30; *two credits.* Mr. LEITH.

118. Lake Superior Geology. A course offered because of the scientific and commercial importance of the Lake Superior region, and the relations of this department to its study. At the close of the course in the spring, an excursion is made to points of geological and economic interest in the Lake Superior country. Given 1914–15 and in alternate years. *Second semester; Tu., Th.*, 3:30; *two credits.* Mr. LEITH, Mr. MEAD.

119. Petrology of Lake Superior Rocks. Study of selected rock types of the Lake Superior region and the problems of the origin of igneous and metamorphic rocks connected therewith. Prerequisite, course 108. *Three credits.* Mr. WINCHELL.

120. Advanced Mineralogy. Special problems in mineralogy or detailed crystallographic work. Prerequisite, course 6. *Hours to be arranged.* Mr. WINCHELL.

121. Invertebrate Paleontology. Characteristics, relationships, and geologic history of the invertebrate animals. Two field trips of one day each, and laboratory periods to be arranged. *First semester;* 9; *five credits.* Mr. MEHL.

122. Research Work. Offered by the members of the department in continuation of their respective courses. The amount of time that can be allotted is subject to special arrangement.

123. Geological Seminary. Subjects under investigation by the members and students of the department. *F.*, 4:30.

125. Field Work for Advanced Students. Two or three weeks in May are spent in geologic mapping of some selected area in iron or copper districts of Lake Superior or zinc district of Wisconsin. *Second semester; three credits.* (Given in alternate years with course 118.) Mr. LEITH, alternating with Mr. BLACKWELDER and Mr. MEAD.

126. Vertebrate Paleontology. The structure, relationships, and geologic distribution of the vertebrate animals. Laboratory periods to be arranged. Logically follows course 121 but may be taken independently. *Second semester;* 9; *five credits.* Mr. MEHL.

127. Advanced Geography. A study of some of the more advanced phases of geography, designed for intending teachers and for students desiring to pursue the study

beyond the more elementary phases. *Second semester; Tu., Th.*, 11; *two credits.* Mr. WHITBECK.

128. Lake Superior Iron Ore Exploration. A course dealing with the geological side of iron ore exploration, particularly with the interpretation of information obtained by diamond drilling. Prerequisite, Descriptive Geometry and course 114, 117, or 118. Given 1913–14 and in alternate years. *Second semester; hours to be arranged; two credits.* Mr. MEAD.

129. Petrogeny. The origin, movements, crystallization, and differentiation of magmas; the origin of derived rocks by katamorphism, by transportation and sedimentation, and by anamorphism. Prerequisite, course 108. *Two credits.* Mr. WINCHELL.

131. Summer Field Course in Physiography and Geology. During August, 4 weeks. Limited to 15 students (men). Not given for less than 5 students. Field study in the Baraboo district near Devil's Lake, Wisconsin, border of glaciated area and driftless area, drumlins and kettle moraines, older and later drift; cost, including living expenses and tuition, $55 to $65. *Four to six credits.* Mr. MARTIN, or Mr. WHITBECK.

132. Geographical Seminary. Study and discussion of special subjects, review of new books and current articles, occasional lectures, reports and short theses; for upperclassmen and graduates. *Tu.*, 3:30 *to* 5:30; *two credits a semester.* Mr. WHITBECK, Mr. MARTIN.

133. Sedimentation. A study of sediments, the rocks derived from them, and the processes concerned in their origin. *Three credits.* (Given 1914–15.) Mr. BLACKWELDER.

134. Regional Geology. The geologic provinces of North America. If time permits, a brief comparative study of other continents will be undertaken. *Three credits; second semester; hour to be arranged.* (Given 1914–15.) Mr. BLACKWELDER.

164. Seminary on the Relations of English History and Geography. Introductory lectures and studies on special topics. *Th.*, 2:30 *to* 4:30; *two credits a semester.* (Omitted 1914–15.) Mr. MARTIN, Mr. DENNIS.

For Graduates

See graduate catalogue for grouping of courses for graduate work.

GERMAN

PROFESSORS HOHLFELD (chairman), VOSS; ASSOCIATE PROFESSORS ROEDDER, GOODNIGHT; ASSISTANT PROFESSORS BRUNS, FEISE, HAERTEL, KIND (secretary), MORGAN, PURIN, REINHARD, STERLING; MR. CAST, DR. CHILES, MR. CHWOROWSKY, DR. GILLET, DR. HAUSMANN, DR. HOLLANDER, DR. IBERSHOFF, MRS. JAMESON, MR. KELLER, DR. VEERHUSEN; MISS ESSINGER, MR. HOHN, MR. LIMPER, MR. NORDMEYER, MR. LUSSKY, DR. RITTINGHAUS, MISS TAYLOR, MR. BLANKENAGEL.

The courses in German are divided into the following four groups:

A. The elementary courses represent the work ordinarily done in the first and second year classes, and are so graded as to meet the needs of high school graduates with different degrees of preparation. Students without previous work in German enter course 1a; those who have had one year of high school German enter course 1b, and those who have had two years of high school German enter course 2a; those who have taken three years of German in the high school enter course 2b. Freshmen with four years of high school German are not allowed to enter any of these elementary courses. They should take up German 3a, unless their general course of study requires a special class in German, like 3S or 3C. Students who possess a thorough practical knowledge of German considerably in advance of what their high school work indicates, should present themselves for an informal examination with a view to being assigned to more advanced classes. Credit for the omitted lower work will, however, be granted only in exceptional cases, regulated by special rules of the faculty, and never without a formal examination.

B. The advanced practice courses differ much in character and grade of work, but have this in common, that they do not deal chiefly with literature, but are intended for specific, practical ends, definitely stated in each case. None of these courses is required of students wishing to study German solely for its literature. Such students after completing course 2b, should select their work from courses 15 to 20, though some of the

work in composition and conversation may be advisable in connection with their literary courses.

C. The courses from 15 to 143 and from 240 to 248 are literary courses of very different degrees of advancement, those from 240 to 248 being open to undergraduate students only in exceptional cases. Many of the less advanced courses, from 15 to 28, though different in subject matter, are of about the same grade. Elections from this group, therefore, are subject to certain restrictions stated below, after courses 20 and 28. Ordinarily, about twelve credits from courses 15 to 28 will be adequate preparation for the more advanced work in literature, as well as for the more elementary courses in philology. Students intending to specialize in German literature are advised to do related work in English literature, in medieval and modern history, and in philosophy. They should also pursue, to a fair degree of advancement, the study of at least one other foreign language and literature, ancient or modern. Their attention is also called to the courses mentioned under "Comparative Literature."

D. The courses from 150 to 159 and from 260 to 270 are devoted to work in German philology. While most of these courses are intended for graduate students working for a higher degree in German, some of them are well suited to the needs of advanced undergraduates. This is especially true of courses 150 and 151, which are required of all students expecting to teach German as their principal subject, but also of courses 152, 153, 157, and 159, all of which are so conducted as to be of direct benefit to properly qualified seniors.

Major in German

Students beginning the study of German in the University with course 1a will find it difficult to choose German as their major to good advantage. Students taking courses 2a and 2b in their freshman year will, as a minimum, have to devote to German from eight to ten credits a year for the remaining three years, taking thus, including the thesis, a total of at least twenty-four credits in advance of course 2b. At least eight of these credits should represent class work in advance of course 30. This amount represents a minimum which will rarely prove sufficient in the case of those preparing to teach

German as their principal subject. Of students of the latter class the following courses are required 10 or 112, 114, 130 or 131, 150 and 151. Students preparing to teach some other subject as their major, with German as their minor, will be required to complete course 10 or 112 and at least four credits in German literature beyond course 20.

As to the maximum number of credits which students may elect in German, the following rules apply in accord with the general statement under "electives." Students beginning their university work in German 1a, 1b, or 2a may take up to forty-six credits, those entering 2b up to forty-three credits, those entering higher classes may not exceed forty credits.

Germanistische Gesellschaft

The Germanistische Gesellschaft is an organization of students and instructors interested in the study of the German language and literature and of German life and culture. There are two general meetings each month, on Wednesday evenings, the programs consisting of lectures, recitations, dramatic performances, singing, and social entertainments. All students specializing in German, preparing to teach German, or wishing to keep up their knowledge of German, are urged to become members of the Gesellschaft and to attend regularly these general meetings which are also open to all interested members of the University and residents of the city.

Aside from these general meetings, there are semi-monthly meetings of the Scientific Section (Wissenschaftliche Abteilung). These are open to the graduate students of the department and are devoted to reports on original investigations, current publications, and pedagogical problems.

German House

Under the auspices of the Germanistische Gesellschaft a German House will be operated during the Summer Session of 1914. Rooms for women students only; board for both men and women. Plans are also being perfected to maintain a German House during the regular academic year. Information will gladly be furnished by Miss Anna Essinger, 616 N. Lake St., Madison, Wis.

ELEMENTARY COURSES

Mr. Purin is in general charge of courses 1a–3b.
Mr. Haertel is in special charge of the sections arranged for students in agriculture and engineering.

For Undergraduates

1a. Beginners' German, *first semester's work.* 'Grammar and easy readings, with practice in speaking and writing German. *Eleven sections, first semester; two sections, second semester; four credits.*

1b. Second semester German. Continuation of course 1a. Prerequisite, course 1a, or one year of high school German. *Three sections, first semester; nine sections, second semester; four credits.*

2a. Third semester German. Modern prose, narrative and dramatic, selected lyrics. Grammar review and elementary syntax. Written and oral exercises. Prerequisite, course 1b, or two years of high school German. *Twenty-two sections, first semester; three sections, second semester; four credits.*

2b. Fourth semester German. Continuation of course 2a; a classical drama. Prerequisite, course 2a, or three years of high school German. *Five sections, first semester; twenty sections, second semester; four credits.*

Special sections of courses 2a and 2b are arranged for students in agriculture, engineering, natural sciences, and the course in commerce.

For instructors, hours, and rooms of the various sections see Time Table.

ADVANCED PRACTICE COURSES

Mr. Goodnight is in general charge of courses 6 and 10.
Mr. Morgan is in general charge of courses 7A, 7B, 7C.
Mr. Haussmann is in general charge of courses 3C, 4C, and 5C.

3a. Fifth semester German. Modern and classical prose and verse. Oral and written work. Study of syntax. In the first semester, open only to freshmen who enter the university with four years of high school German; in

the second semester, open only to students who have had course 2b in the first semester. *One section, first semester, five sections, second semester; four credits.* Mr. GILLET, Mr. HAUSSMANN, Mr. HOHN, Mr. KRUMMEL, Miss ESSINGER.

3b. Sixth semester German. Continuation of course 3a. *Second semester; four credits.* Mr. GILLET.

3S. Scientific German. For students specializing in science. Prerequisite, course 2b. Rapid reading of scientific prose. *Throughout the year; W., F.*, 9. Mr. CHILES.

3C. For sophomores in the Course in Commerce. Reading, conversation, and composition. Prerequisite, course 2b. Two sections. *Throughout the year; Tu., Th.*, 10. Mr. CHILES, Mr. GILLET, Mr. HOLLANDER.

4C. For juniors in the Course in Commerce. Reading, conversation, and composition, chiefly on topics of special value to students of commerce. *Throughout the year; two credits.* (Omitted 1913–14.)

5C. For seniors in the Course in Commerce. A continuation of the work of 4C. *Throughout the year; M.*, 1:30; *W.*, 4:30. Mr. HAUSSMANN.

6. Grammar and Composition. Prerequisite, course 2b. For students who desire more practice in grammar and prose composition. *Throughout the year; W.*, 2:30. Miss STERLING.

7A. Elementary Conversation. Class practice, with but little work at home. Prerequisite, same as for course 6. Six sections. *Throughout the year; two hours a week; one credit.* Mr. FEISE, Miss STERLING, Mr. GILLET, Mr. HOHN, Mr. HOLLANDER, Mr. IBERSHOFF, Mr. MORGAN, Mr. LUSSKY, Mr. RITTINGHAUS.

7B. Intermediate Conversation. Prerequisite, at least four semester hours in advance of course 2b, or sufficient ability in speaking German. *Throughout the year; one credit; Tu., Th.*, 2:30. Mr. IBERSHOFF, Mr. RITTINGHAUS.

Courses 6, 7A, and 7B, may, without special permission, be taken only in connection with some other course in the department.

7C. Major Course in Conversation. For students preparing to teach German, but deficient in the oral use of the lan-

guage. *Throughout the year; Tu., W., Th., F.*, 8; *two credits.* Mr. BLANKENAGEL.

Students registering for work in conversation should consult Mr. Morgan as to the course to be selected.

8. German Pronunciation and Expressive Reading. Reading of prose and poetry, with special attention to pronunciation and expression. Open, after consultation, to students of fair advancement in German. Not open to freshmen. *First semester; two hours a week; one credit.* Mr. FEISE.

10. Composition and Conversation. Special work in German syntax. Prerequisite, at least four credits in advance of course 2b. Four sections. *Throughout the year; two credits.* Mr. GOODNIGHT, Mr. KIND, Mr. MORGAN, Miss STERLING, Miss VEERHUSEN.

11. Journalistic German. Reading of current German newspapers and periodicals. *Throughout the year; Tu., Th.*, 8; *one credit.* Mr. HAERTEL.

13. Grammar Review. A detailed discussion of theoretical grammar from the standpoint of the high-school teacher. Open to seniors. (Omitted 1913–14.) *Second semester; Tu., Th.*, 1:30. Mr. PURIN.

For Undergraduates and Graduates

108. Similar to course 8, but intended for more advanced students as a sequel to course 153, General Phonetics. In alternate years. *Second semester; two hours a week; one credit.* (Omitted 1913–14.) Mr. FEISE.

112. Advanced Practice in Writing and Speaking German. Discussions and essays on topics of German life and literature. Open to advanced students specializing in German. In advance of course 10, though ordinarily students should take only one of the two courses. *Throughout the year; Tu., Th.*, 10. Mr. FEISE.

114. The teaching of German. A critical study of the methods of teaching modern foreign languages. Lectures, reports, discussions, and practice teaching. Open to graduate students. *Repeated each semester; first semester for juniors, second semester for seniors.* (Omitted second semester 1913–14.) Mr. PURIN.

The attention of students in this course is called to course 153, General Phonetics.

GERMAN LITERATURE

Mr. KIND is in general charge of courses 15–30.

For Undergraduates

15. Classical and Modern Writers. Selections from eighteenth and nineteenth century authors, and written exercises. Prerequisite, course 2b. Not open to students who have had courses 3a and 3b. Two sections. *Throughout the year; three credits.* Mr. MORGAN, MISS VEERHUSEN.

To make suitable four or five hour courses, course 15 should be combined with 6, 7A, 7B, 7C, 8, 16, or 20.

16. Prose Reading. Rapid reading of historical, biographical, and descriptive texts. Also adapted to students preparing for the language examination required for the doctor's degree. Prerequisite, course 2b. *Throughout the year, Tu., Th.*, 3:30. Mr. HOLLANDER.

17. Modern German Dramatists. Selected dramas of Grillparzer, Hebbel, and other authors, like Ludwig, Sudermann, and Hauptmann. A rapid reading course. Introduction to literary interpretation. *Throughout the year; M., W., F.*, 11. Mr. CAST.

18. Modern German Novelists. Selected novels of Scheffel, Freytag, Keller, C. F. Meyer, and Sudermann. A rapid reading course. *Throughout the year, M., W., F.*, 11. Mr. HAUSSMANN.

20. Schiller. Introductory study of his life, reading of *Braut von Messina* and *Wallenstein. Throughout the year; two credits.* Two sections. Mr. HAERTEL, Mr. IBERSHOFF.

Courses 15 to 20 are primarily intended for students who have had course 2b, or its equivalent. Students having had more than four semester hours in advance of course 2b will be required to do additional work to receive full credit. Courses 16 and 20 are given in English, the rest partly in German.

Not more than two of the following courses may regularly be taken for credit: 3, 15, 16, 17, 18, 20.

21. German Poetry. *Das Oxforder Buch deutscher Dichtung (first semester);* Wagner's Music Dramas: *Die Meistersinger von Nürnberg* and *Der Ring des Nibelungen (second semester). M., W., F.*, 1:30. Miss STERLING.

22A. Heine. Introduction to the study of his life and poetry. Lyrics, *Harzreise*, and other prose writings. *First semester; M., W., F.*, 10. (Omitted 1913–14.) Mr. BRUNS.

22B. Hebbel. Introduction to the study of his life, poetry, and theory of art. Reading of several dramas and selections from letters and diaries. *Second semester; M., W., F.*, 10. Mr. BRUNS.

23. Goethe. Introductory study of his life, and selections from his works. *Götz* and *Egmont*. *Throughout the year; M., W.*, 10. Alternates with course 24. (Given 1913–14.) Mr. Voss.

24. Lessing. Introductory study of his life, and selections from his works. *Emilia Galotti*, *Nathan*, and prose selections. *Throughout the year; M., W.*, 10. Alternates with course 23. (Given 1914–15.) Mr. Voss.

25. Goethe's Prose Works. A critical study of Goethe's masterpieces of prose. *Throughout the year; Tu., Th.*, 11. Alternates with course 27. (Omitted 1913–14.) Mr. FEISE.

26. Modern Fiction. Keller, Storm, Meyer, Raabe. Biographical sketch and study of characteristic narratives of each. *Throughout the year; Tu., Th.*, 10. Mr. GOODNIGHT.

27. Contemporary Drama. Representative authors of the modern movements, such as Hauptmann, Sudermann, Hofmannsthal, Schnitzler, etc. Lectures, recitations, and outside reading. Alternates with course 25. *Throughout the year; Tu., Th.*, 9. Mr. FEISE.

28. Grillparzer. Critical study of his life and works. Representative dramas will be studied in class and others will be assigned for private reading. Lectures and recitations. *Throughout the year; Tu., Th.*, 11. Mr. KIND.

Courses 21 to 28 are primarily intended for juniors specializing in German, but are open to all others who have had at least six credits in advance of course 2b.
Not more than 14 credits may regularly be taken from courses 21 to 28.

29. Survey of German Painting and Sculpture of the Nineteenth Century. Illustrated lectures. Not open to freshmen; does not count towards a major or minor in German. *First semester; Tu., Th.*, 2:30; *one credit*. Miss STERLING.

30. Germany and its Institutions. Lectures (partly illustrated) and assigned readings. Can not count towards minimum requirements for a major in German, nor towards the language requirement, unless taken for two credits with outside reading in German. *Second semester; M., W.*, 2:30; *one or two credits.* Mr. HAERTEL.

Courses 21, 22A, 22B, 29, and 30 are given in English, the rest partly in German.

Thesis Courses

In conformity with the faculty regulations concerning thesis courses (see requirements for degrees), the following were offered in 1913–14.

A. Schiller. Mr. ROEDDER.

B. Parzival. Mr. MORGAN.

Subjects and instructors for 1914–15 will be announced later.

For Undergraduates and Graduates

Mr. HOHLFELD is in general charge of courses 130–248L.

130. Goethe's Faust. Interpretation of both parts of *Faust* and of the lyrics and letters as a basis for a general study of the poet's life and art. Conducted in English. Alternates with course 131. *Throughout the year; M., W., F.*, 9. (Given 1914–15.) Mr. HOHLFELD, Mr. KELLER.

131. History of German Literature. English lectures, with outside reading of representative works. Attention is given to the relation of literature and other fields of culture. *Throughout the year; M., W., F.*, 9. Alternates with course 130. (Given 1913–14.) Mr. HOHLFELD, Mr. KELLER.

132. Lessing. A critical study of his life and works. Lectures, discussions, and reports. *First semester; two credits.* (Omitted 1913–14.) Mr. HAERTEL.

133. Goethe's Novels. Critical study of *Werther, Die Wahlverwandschaften*, and *Wilhelm Meister*, and their relation to contemporaneous German thought and literature. Lectures and readings. *W.*, 3:30 *to* 5:30. (Given first semester, 1913–14.) Mr. FEISE.

134. Lyric Poetry of the Nineteenth Century. Special attention will be given to the study of rhythm and meter. *Throughout the year; two credits.* (Omitted first semester, 1913–14.) Mr. BRUNS.

135. The Novel of the Nineteenth Century. Special attention will be given to the general aspects of German life and thought in so far as they find expression in the novel. Alternates with course 143. *Throughout the year; two credits.* (Omitted 1913–14.) Mr. GOODNIGHT.

136. Popular German Literature. *Volkslied, Märchenliteratur,* and *Volksbücher (first semester);* modern dialect literature *(second semester). Two credits.* Alternates with course 137. (Given 1914–15.) Mr. ROEDDER.

137. Schiller. A study and discussion of his dramas, dramatic fragments, philosophical writings, and correspondence. *Throughout the year; two credits.* Alternates with course 136. (Given 1913–14.) Mr. ROEDDER.

138. Shakspere in Germany. The introduction of Shakspere into Germany, and his influence on German literature during the eighteenth century and on the Romantic School. Lectures, assigned readings, and reports. Alternates with course 242. *Throughout the year; two credits.* (Given 1913–14.) Mr. KIND.

139. German Metrics. A detailed study of German prosody, with special emphasis on the verse of the eighteenth and nineteenth centuries. Alternates with course 245. (Given 1914–15.) *Second semester; two credits.* Mr. FEISE.

143. Storm. Detailed study of his life and works. Alternates with course 135. Lectures, assigned readings, and reports. *Tu., Th.,* 8. (Given second semester 1913–14.) Mr. GOODNIGHT.

Courses 130, 131, 132, and 138 are given in English, the rest in German.

For Graduates

240. Herder. His life and works, with special reference to his influence on the Storm and Stress movement and on the Romantic School. Alternates with course 241. *Second semester; twice a week.* (Given 1913–14.) Mr. HAUSSMANN.

241. The Romantic School in Germany. A study of the early romantic movement, especially the two Schlegels, Tieck, Novalis, Wackenroder, Fichte, and Schelling. Alternates with course 240. *Second semester; Tu.,* 4 *to* 6. (Given 1914–15.) Mr. HAUSSMANN.

242. The Literary Relations of England and Germany in the Eighteenth Century. Particularly the influence on German literature of the *Spectator*, Milton, Young, Ossian, and ballad poetry; Pope, Thomson, Defoe, Swift, Richardson, Fielding, Sterne, and Goldsmith. Alternates with course 138. *Throughout the year; twice a week.* (Given 1914–15.) Mr. KIND.

243. German Literature in America. The influence of German literature on American writers. *First semester; W.*, 3:30 *to* 5:30. (Given 1913–14.) Mr. GOODNIGHT.

244. History of Middle High German Literature. The literary movements from the twelfth to the end of the fifteenth century, with special reference to German life and culture. Prerequisite, course 152. *Throughout the year; twice a week.* (Omitted 1913–14.) Mr. MORGAN.

245. Interrelations of German and French literature during the seventeenth and eighteenth centuries, with special reference to the novel. Alternates with course 139. *Second semester; twice a week.* (Omitted 1913–14.) Mr. FEISE.

246. Pre-Classical Drama. The drama in theory and practice from Luther to Lessing. Lectures, readings, and reports. *Twice a week.* (Given second semester 1913–14.) Mr. GILLET.

247. Proseminary in German Literature. Investigations of limited compass are to prepare graduate students for the more advanced work of the seminary proper. Special attention will be given to bibliography, style, meter, and poetic theory. The work will in alternate years be in the following subjects:

A. The literature of the seventeenth and of the first half of the eighteenth century. (Given 1914–15.)

B. The classical period of the second half of the eighteenth century. Klopstock, Wieland, Lessing, Herder. (Given 1913–14.) *Throughout the year; M., W.*, 10. Mr. HOHLFELD.

247L. Bibliography and Methods. This course may be combined with course 247, or taken separately by special permission. *F.*, 10. Mr. HOHLFELD.

248. Seminary in German Literature. The aim is to train graduate students in the scientific methods of the historical

and critical study of literature. The general fields from which specific problems are chosen for investigation, form a cycle of three years.

A. Interrelations of German and English Literature, chiefly during the last three centuries. (Given 1913–14.)

B. Goethe *(first semester)* and Goethe's *Faust (second semester)*. (Given 1914–15.)

C. The history of the German drama, from the medieval beginnings to the present. (Given 1912–13: Kleist and Hebbel; Anzengruber and Hauptmann.) *Throughout the year; Th.*, 4 *to* 6. Mr. HOHLFELD.

248L. Seminary Lectures. A course of weekly lectures in German furnishing a connected survey of the period studied in the seminary. Open also to advanced students not in the seminary, who may secure one hour's credit by doing regular outside reading. *Throughout the year; Th.*, 4:30. (Omitted 1913–14.) Mr. HOHLFELD.

Courses 242, 243, and 244 are given in English, the rest are given in German.

GERMAN PHILOLOGY

Mr. Voss is in general charge of courses 150–270.

For Undergraduates and Graduates

150. Historical survey of the German language with special reference to modern German grammar. German in its relation to the other members of the Germanic and Indo-germanic family of languages. Lectures and reading of selected texts to illustrate the historical development of the language, especially during the Modern High German period. *First semester; M., W.*, 11. Mr. Voss.

151. Middle High German. Introductory course. Lectures on the German folk epics and on German life in the twelfth century. Study of *Der Nibelunge Nôt. Second semester; M., W.*, 11. Mr. Voss.

152. Advanced Middle High German. Studies in the language and literature of the twelfth and thirteenth centuries. Lectures and critical study of texts.

A. *Kudrun* and *Dietrichepen (second semester);* and Walther von der Vogelweide *(first semester)*. (Given 1913–14.)

B. Hartmann von Aue; *Der arme Heinrich (first semester);* and Early Middle High German *(second semester).* (Given 1914–15.)

C. Selections from Wolfram von Eschenbach and Gottfried von Strassburg *(first semester);* selections from *Die Epigonen des höfischen Epos (second semester).* (Given 1915–16.) *Two credits.* Mr. Voss.

153. General Phonetics. A study of the nature and production of the speech sounds in the most important Indo-European languages, both from a pedagogical, and a philological standpoint. Open to graduate and properly prepared undergraduate students from all the language departments of the university. *Second semester; two credits.* Mr. Morgan.

Students desiring more practice than the course in phonetics can provide, should, in the second semester, take course 108.

154. Gothic Grammar, with readings from the Gospels. *First semester; two credits.* Alternates with course 158. (Given 1913–14.) Mr. Roedder.

155. Old High German, with special reference to German life and culture. Braune's *Althochdeutsche Grammatik* and readings from Braune's *Althochdeutsches Lesebuch.* Alternates with course 159. *Second semester; two credits.* (Given 1913–14.) Mr. Roedder.

157. Introduction to the Study of *Volkskunde.* Lectures and collateral reading. In alternate years. *First semester; one credit.* Mr. Roedder.

158. Old Saxon, with special reference to Germanic life and culture. Holthausen's *Altsächsisches Elementarbuch* and extracts from the *Heliand,* ed. Behaghel. Alternates with course 154. *First semester; two credits.* (Given 1914–15.) Mr. Roedder.

159. Germanic Mythology and Heroic Legends. Lectures and collateral reading. Alternates with course 155. *Second semester; two credits.* (Given 1914–15.) Mr. Roedder.

Courses 150, 151 are given partly in German and partly in English, 153 in English, and the rest in German.

For Graduates

260. Classical German Philological Literature. An introduction to the history of German philology and to the study of philological methods. Lectures and discussions. *Once a week.* (Given 1913–14.) Mr. Voss.

261. Deutsche Wortkunde, Onomatik. Chapters from the general history of language with special reference to German. Sound laws and sound changes, accent. Formation, deriviation, and composition of words. Popular etymologies. Inflection. Changes in the meaning of words. Etymological groups. Lectures and discussions. *Once a week.* Mr. Voss.

262. Etymological studies based on H. Hirt's *Etymologie der Neuhochdeutschen Sprache.* Lectures and discussions. *Once a week.* Mr. Voss.

263. Pre-Germanic Grammar. *First semester:* A study of Germanic phonology as apparent in Gothic, Old Norse, Old High German, Old English, and Old Saxon. *Second semester:* Morphology and syntax. This course is the natural supplement of any work in Germanic philology, and at the same time a sequel to course 153. *Twice a week.* (Given 1914–15.) *Throughout the year.* Mr. Aron.

264. Modern and Middle Low German. *Reinke de Vos* and extracts from Fritz Reuter's prose writings. *Throughout the year; M., W.,* 10. (Given 1913–14.) Mr. Voss.

265. Studies in the language and literature of the sixteenth century with lectures on the history and development of the Modern High German literary language. *Throughout the year.* (Given 1914–15.) *M., W.,* 10. Mr. Voss.

266. Studies in the language and literature of the fourteenth and fifteenth centuries. Lectures and critical study of texts. Throughout the year. (Given 1915–16.) M., W. 10. Mr. Voss.

269. Pro-seminary in German Philology. For 1914–15: Old High German poetry *(first semester);* Old Saxon *(second semester).* For 1913–14: Old High German prose *(first semester);* Gothic *(second semester.) S.,* 9. Mr. Roedder.

270. Philological Seminary. The work of the seminary varies. Special attention is given to the classical writers of the

Middle High German period, but also the other periods, especially the transition period from Old to Middle High German, will be studied.

A. Gottfried von Strassburg, *Tristan und Isolde.* (Given 1913–14.)

B. Wolfram von Eschenbach, *Parzival.* (Given 1914–15.)

C. Hartmann von Aue, *Iwein (first semester);* Meier Helmbrecht *(second semester).* (Given 1915–16.)

Reading and discussion of papers prepared by the members of the seminary. *Throughout the year; Tu.,* 4:20 *to* 6. Mr. Voss.

Courses 260–270 are given in German.

GREEK

Emeritus Professor Kerr; Professors Smith* (chairman), Showerman; Associate Professors Laird, Fiske; Mr. Clark, Mr. Shero.

The requirements for an undergraduate major in Greek are, in addition to the thesis, a minimum of twenty-two semester hours, not including courses A and B.

For Undergraduates

A1. Elementary Greek. White's *First Greek Book,* Xenophon's Anabasis. *M., Tu., Th., F.,* 3:30. Mr. Smith.

A2. Elementary Greek. White's *First Greek Book. Second semester; M., W., F.,* 1:30. Mr. Clark.

B. Xenophon's *Anabasis* III–IV, Homer's *Odyssey* I–IV, Greek Composition. *Tu., Th., S.,* 2:30. Mr. Shero.

For students who have had one year of preparatory work.

1a. Herodotus VIII, Homer's *Odyssey* V–XII, Plato's *Apology* and *Crito. M., W., F.,* 8. Mr. Laird.

For students who have had two years of preparatory work.

1b. Greek Prose Composition and Sight-reading. *Tu., Th.,* 8. Mr. Laird.

2a. The *Philippics* of Demosthenes, Thucydides VII, Goodwin's *Moods and Tenses. First semester; M., W., F.,* 10. Mr. Laird.

* On leave of absence for the year 1914–15.

Euripides, two or more plays, *Jebb's Primer of Greek Literature. Second semester; M., W., F.*, 10. Mr. LAIRD.

2b. Herodotus VII, or selected dialogues of Lucian, and Euripides, (two plays.) *M., F.*, 11. Mr. SMITH or Mr. LAIRD. For those who have had course 1, or whose preparatory work has been particularly good.

3. Greek Prose Composition. *W.*, 11. Mr. LAIRD. Required of those who expect to get recommendations to teach Greek.

4. Easy Greek for Sight Reading. Open to those who have completed course 1. *One hour a week*, to be arranged on consultation. Mr. SMITH.

For Undergraduates and Graduates

105a. Greek Lyric Poets. Study of meters. *First semester; M., W., F.*, 11. (Omitted 1914–15.) Mr. SMITH.

105b. Thucydides; Demosthenes. *Second semester; M., W., F.*, 11. (Omitted 1914–15.) Mr. SMITH.

106. Greek Dramatic Poets. *First semester:* Aeschylus (two plays), Sophocles (two plays). Study of meters. *Second semester: Aristophanes* (two plays), *Aristotle's Poetics*, discussion of the Greek drama. *M., W., F.*, 11. Mr. SMITH.

108. Plato. *The Republic. Tu., Th.*, 9. Mr. LAIRD.

110. Advanced Greek Composition. *First semester; once a week.* Mr. LAIRD.

112. Life of the Greeks and Romans. A lecture course illustrated by lantern slides. Open to all students. A knowledge of Greek and Latin is not essential. *Tu., Th.*, 11. (See Latin 112.) Mr. SHOWERMAN.

113. Greek Literature in English translations (Homer). A knowledge of Greek is not required. *First semester; Tu., Th.*, 9.

113b. Greek Literature in English translations (Drama). A knowledge of Greek is not required. *Second semester; Tu., Th.*, 9. Mr. SMITH.

For details of courses 113 and 113b see Comparative Literature 101 and 103.

115. Classical Archaeology. The history and appreciation of Greek sculpture, architecture, and painting. A course introductory to the study of art. Mr. SHOWERMAN. (Omitted. See Latin 122.)

116. Greek Religion. (See Latin 227.)

For Graduates

220. Thucydides. The whole of the author is read privately by the members of the class. Especial attention is given in the seminary exercises to text criticism. *Throughout the year; S.*, 10 *to* 12. (Omitted 1914–15.) Mr. SMITH, Mr. WESTERMANN.

221. Greek Drama. Sophocles. The whole author is read privately by the members of the class. The general treatment in courses 221 and 222 will be literary in character. *Throughout the year; S.*, 10 *to* 12. (Omitted 1914–15.) Mr. SMITH.

222. Lyric Poetry. Especial attention is given to Pindar, the whole being read privately. *Throughout the year; S.*, 9 *to* 11. (Omitted 1914–15.) Mr. SMITH.

223. Homer. The *Iliad*. *S.*, 9 *to* 11. Mr. LAIRD.

224. Greek Literature. Lectures, with selections from Greek authors, read by the class. Lyric Poetry. *First semester; twice a week.* Drama and History. *Second semester; twice a week.* (Omitted 1914–15.) Mr. SMITH.

225. Greek Orators. Antiphon, Andocides, Lysias, and Isaeus. *W.*, 4:30 *to* 6. (Omitted 1914–15.) Mr. LAIRD.

230. Greek Grammar. History of the sounds and forms. *First semester; Tu., Th.*, 5. (Omitted 1914–15.) Mr. LAIRD.

231. Greek Syntax. Lectures on the development of Attic usage, with particular reference to the cases and modes. *Second semester; Tu., Th.*, 5. (Omitted 1914–15.) Mr. LAIRD.

233. Journal Club. Reports on and discussion of current philological literature. *One hour a week.* Mr. SMITH.

HISTORY

PROFESSORS DENNIS, FISH, MUNRO (chairman), PAXSON, SELLERY; DR. THWAITES; ASSOCIATE PROFESSORS CHASE, MATHEWS, WESTERMANN; ASSISTANT PROFESSORS COFFIN, ROOT, SMITH; MR. BYRNE; MR. FARRAR, MISS GALLAGHER, MR. JORANSON, MR. MCGRANE, MR. MCMURRY, MR. MANHART, MR. OLIVER, MR. VAN CLEVE. Special Lecturer: DR. JAMESON.

The courses in history are divided into three groups:

A. Introductory courses (1, 2, 4, 5, 6, and 10) are for undergraduates, and may not be counted toward advanced degrees in history. Courses 1, 5, 6, and 10 are the only courses in history open to freshmen. Students may take only one of these freshman courses for full credit (three credits each semester) since each contains introductory training for which credit ought not to be given twice; but they are permitted to take the others without the supplementary reading and topic for two credits each semester. Students not registered in the College of Letters and Science may take any of the introductory courses for two credits each semester. Students are advised not to neglect advanced work in the attempt to cover all of the introductory courses.

B. Advanced courses 100 to 149, 164, 165, and 175 are designed to meet the needs of undergraduates and graduates, and to 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.

Courses 150 and 151 are given primarily for students who expect to teach history in secondary schools. Seniors completing a major or a teaching minor in history will be regularly admitted to these courses. Other seniors and graduates will be admitted only by special permission.

C. Courses 251 to 262 are open only to graduate students.

The Major in History

Twenty-six credits in history, in addition to the thesis, are required for an undergraduate major in history and must include

(a) One introductory course in European and one in American history.

(b) At least twelve credits in advanced courses.

The Master's Degree in History

Candidates for the master's degree in history who have completed an undergraduate major in history in this University, or its equivalent elsewhere, are required, in their year of work for the degree, to do one-half their work (*e. g.*, a three-hour lecture course and a seminary, both throughout the year), in advanced history, and to write an acceptable thesis. They are permitted to complete their programmes from advanced courses in history or related subjects. Other candidates for the master's degree in history will be required to concentrate their work more fully, or exclusively, upon history. Every candidate for this degree is expected to have had, as undergraduate or graduate, at least one advanced course in European and one in American history.

The Doctor's Degree in History

Candidates for the doctor's degree with major in history are required, *inter alia*, to possess a general knowledge of a broad field of history (ancient history, medieval history, modern history, English history, or American history) and an intimate knowledge of some more limited field, and to submit a scholarly dissertation within the limited field. The other requirements for the degree are given in the Graduate Bulletin.

For Undergraduates

INTRODUCTORY COURSES OPEN TO FRESHMEN

Freshmen are permitted to choose two of the introductory courses 1, 5 or 6, and 10, for five credits, but are not required to do the special training work (including supplementary reading and topic) in the second of the two courses.

10. Ancient History. A general survey of the history of the ancient world, including the Oriental nations, Greece, and Rome. Textbooks, lectures, collateral reading, and topics. *Throughout the year; Tu., Th., S.*, 9. Mr. WESTERMANN.

1. Medieval History. A general survey of the history of Europe from the barbarian invasions to the close of the fifteenth century. Lectures, conferences, collateral read-

ing, and topics. *Throughout the year; M., W., F.*, 10. Mr. MUNRO, Mr. SELLERY, and assistants.

5. English History. An outline of political and constitutional history, as a framework for the study of the economic and social development of the nation. Students who have had both semesters of history 1 may enter this course at the beginning of the second semester. (Not open to students in the Course in Commerce.) *Throughout the year; Tu., Th.*, 10, *and a third hour in sections for conferences.* Mr. DENNIS, Mr. SMITH, and assistants.

6. English History. A general survey of the history of England with emphasis on social and economic conditions. Open only to students in the Course in Commerce. Lectures, text-books, collateral reading and reports. *Throughout the year; Tu., Th.*, 10 *and a third hour in sections for conference.* Mr. BYRNE.

INTRODUCTORY COURSES NOT OPEN TO FRESHMEN

2. Modern European History. A general survey extending from the close of the fifteenth century to the present day. Lectures and collateral readings. *Throughout the year; M., W., F.*, 11. Mr. SELLERY.

4a. History of the United States. A general survey from the revolutionary era to the present, with emphasis upon political history. This course, or an equivalent, must precede all advanced courses in American history. To the presidency of Jackson, *first semester*, Mr. FISH; from the presidency of Jackson to the present, *second semester, M., W., F.*, 11. Mr. PAXSON.

4b. History of the United States. A general survey similar to 4a in character, content, and method. From the presidency of Jackson to the present. *First semester; M., W., F.*, 10. Mrs. MATHEWS.

For Undergraduates and Graduates

ANCIENT AND MEDIEVAL HISTORY

125. Greek Civilization and its Expansion. A study of the development and character of Greek civilization, and of the forces making for its expansion, to the beginning of the Roman Empire. *First semester; M., W.*, 1:30. (Omitted 1913–14.) Mr. WESTERMANN.

126. The Roman Empire. A study of the organization and government of the Empire from the death of Julius Caesar to the era of Diocletian, and the civilization of the Roman world in that period. *Second semester; M., W.,* 1:30. (Omitted 1914–15.) Mr. WESTERMANN.

123. The Roman Empire in the East. A study of the political history and civilization of the eastern portion of the Roman Empire from the founding of Constantinople to its capture by the Turks. *Second semester; M., W.,* 1:30. (Omitted 1913–14.) Mr. WESTERMANN.

129. Greek and Roman Institutions. To the end of the Roman Republic. *First semester; M., W.,* 1:30. (Omitted 1914–15.) Mr. WESTERMANN.

131. Medieval Civilization. Designed to supplement course 1 by a special study of the intellectual life of the feudal period and of the organization of society. (Not open to sophomores.) *First semester; Tu., Th.,* 10, *and a third hour to be arranged.* (Omitted 1913–14.) Mr. MUNRO.

132. The Crusades. Designed to supplement course 1 by a more extended study of the period from 1095 to 1291, with special reference to the causes, events, and influence of the Crusades. (Not open to sophomores.) *Second semester; Tu., Th.,* 9. Mr. MUNRO.

141a. Constitutional History of England. A study of the formation and growth of English institutions, to the close of the Middle Ages; designed to be particularly useful for those who intend to study law. *First semester; Tu., Th.,* 10, *and a third hour to be arranged.* (Omitted 1914–15.) Mr. MUNRO.

134. The Renaissance. The development of civilization in the period from Dante to Luther, conventionally known as the Renaissance. The work of some of the great politicians, poets, scholars, artists, historians, explorers, and religious leaders. *First semester; Tu., Th.,* 9, *and a third hour for conferences.* Mr. SELLERY.

130. Modern Historians. A discussion of the writings of English, French, German, Italian, and American historians of the latter part of the eighteenth and of the nineteenth

century, to illustrate the problems and methods of work in various fields of European history. (Not open to sophomores.) *Second semester; Th.*, 1:30. Mr. MUNRO.

MODERN HISTORY

137. Modern Civilization. Designed to supplement course 2 by reviewing European institutional and *kulturgeschichtliche* development from the Peace of Westphalia to the end of the nineteenth century. (Not open to sophomores.) *First semester; M., W., F.*, 11. Mr. COFFIN.

141b. Constitutional History of England. A study of the growth of English institutions since the Middle Ages. A continuation of course 141a to the present. *Second semester; Tu., Th.*, 10, *and a third hour to be arranged.* (Omitted 1914–15.) Mr. SELLERY.

140. The Protestant Revolt. The place of the church in fifteenth century civilization; the causes, nature and results of the Protestant revolt of the sixteenth century and of the Catholic Reformation; the influence of these movements upon contemporary civilization. *Second semester; Tu., Th.*, 9, *and a third hour for conferences.* (Omitted 1913–14.) Mr. SELLERY.

148. Expansion of Europe Since the Fifteenth Century. The relations of Europe chiefly with Asia and Africa, involving the development of colonies, trade, and international policies. *Throughout the year; hours to be arranged.* (Omitted 1913–14.) Mr. DENNIS.

142. England under the Tudors and Stuarts. The constitutional and religious struggles in the sixteenth and seventeenth centuries, economic and social changes, international relations, the development of sea-power, and the founding of the British Empire. *Throughout the year; Tu., Th.*, 11. (Omitted 1913–14.) Mr. DENNIS.

143a. The British Empire, 1688–1815. A course dealing with the development of modern English institutions, foreign affairs, the international struggle for colonial and commercial supremacy, and the evolution of imperial politics. *First semester; Tu., Th.*, 10. (Omitted 1913–14.) Mr. DENNIS.

143b. The British Empire since 1815. For description see course 143a. Special attention will be paid to foreign policy and economic and colonial development. *Throughout the year; Tu., Th.*, 11. Mr. DENNIS.

144. The Development of Modern Russia, from the Muscovite leadership of the fifteenth century to the end of the nineteenth century. A study of institutions and of foreign relations. Prerequisite, course 2 or its equivalent. *First semester; Tu., Th.*, 4:30. (Omitted 1913–14.) Mr. COFFIN.

145. The Development of Prussian Leadership in Germany, 1640–1871. A study of the growth of modern Prussian institutions and of the building by Prussia of a new empire. Prerequisite, course 2 or its equivalent. *First semester; M., W.*, 4:30. (Omitted 1914–15.) Mr. COFFIN.

138. The French Revolution and the Napoleonic Empire, 1789–1815. A general study of the development of the Napoleonic Empire and of the Napoleonic institutions. Prerequisite, course 2 or its equivalent. Alternates with course 139. *First semester; M., W., F.*, 10. (Omitted 1913–14.) Mr. COFFIN.

139. The Nineteenth Century. This course presupposes a fair acquaintance with the narrative of nineteenth century history in continental Europe, and will be devoted to some leading phases of the development of political institutions. Alternates with course 138. *First semester; M., W.. F.*, 11. (Omitted 1914–15.) Mr. COFFIN.

AMERICAN HISTORY

116. The American Colonies. European background of colonial history, development of the social, economic, and political life of the colonies, growth of American institutions and principles, and expansion of settlement to 1760. *Throughout the year; may be elected by semesters; M., W., F.*, 10. Mr. ROOT.

113. History of New England. Transfer of population from Europe to New England, the forces, social, economic, political, that acted upon it there, and its expansion westward. *Second semester; M., W., F.*, 8. (Omitted 1913–14.) Mr. FISH.

114. History of the South. A study of the origins, expansion, and institutions of the slave-holding area, and its sectional relations to national life. (Not open to sophomores.) *Throughout the year; M., W., F.*, 9. (Given 1914–15.) Mrs. MATHEWS.

111. History of the West, 1763–1890. The conditions of migration, the institutions of frontier communities, and the influence of the West upon national development. *Throughout the year; may be elected by semesters; M., W., F.*, 9. Mr. PAXSON.

112b. History of Wisconsin. A general survey from Nicolet's discovery (1634) to the close of the Civil War, with an evaluation of source material. *First semester; Tu., Th.*, 1:30. Mr. THWAITES.

115. Diplomatic History of the United States. Actual negotiations between the United States and other countries, and the progress of international law so far as it has involved the United States. *Throughout the year; Tu., Th.*, 10. Mr. FISH.

117. Constitutional History of the United States. Origin and historical development of constitutional principles and practices from colonial days to the Jacksonian period. *Tu., Th.*, 8. Mr. ROOT.

118. Civil War and Reconstruction. A general study of the history of the United States, 1860 to 1876. *First semester; M., W., F.*, 8. (Omitted 1913–14.) Mr. FISH.

124. Recent History of the United States, 1873–1912. The reorganization of parties since the close of the period of reconstruction, and the trend towards nationalization. *Throughout the year; may be elected by semesters; Tu., Th.*, 11. Mr. PAXSON.

175. Slavery as an Institution. A course for seniors and graduate students. Lectures and topics. *Second semester; lectures four times a week for three weeks; Tu., Th., F., hour to be arranged; one credit.* Mr. JAMESON.

121. Studies in Colonial History. The work will be selected from the field of British-American relations and will consist of lectures, reports, and discussion. *Tu., Th.*, 9. Mr. ROOT.

150. The Teaching of History in the High School. (a) The special educational value of history and the problems of the

history teacher. (b) A comparative study of methods. (c) Observation in the Wisconsin High School and the Madison High School, and practice work. Open to seniors whose major or minor is history. *Repeated each semester; M., W.*, 2:30. Mr. CHASE.

151. Supplementary Reading for Teachers of History. Designed to give acquaintance with the books available for supplementary reading and opportunity to organize this material for class-room use; to consider practical methods of promoting and directing the pupil's reading; and to afford an opportunity for review of the first 8 to 10 weeks' work in the four fields of high-school history. Required of all whose minor is history, and open to those also whose major is in this subject. *Second semester; Tu., Th.*, 2:30. Mr. CHASE.

164. Seminary in the Relations of English History and Geography. Introductory lectures and study of selected topics. *First semester; hours to be arranged.* (Omitted 1914–15.) Mr. DENNIS, Mr. MARTIN.

165. Seminary in the Relations of History and Geography. (Omitted 1913–14.) Mr. FISH, Mr. WHITBECK.

For Graduates

251. Diplomatics. Elementary exercises in the study of mediæval documents. *Second semester; hours to be arranged.* (Omitted 1913–14.) Mr. MUNRO.

252. Historical Method. Introductory course, including consideration of problems of method, review of available materials for research, with bibliographical suggestions, and consideration of the technique of editing and publishing. Graduate students in their first year are expected to take this course. *Throughout the year; W.*, 3:30 *to* 5:30. Mr. SELLERY, Mr. FISH, Mr. WESTERMANN, Mr. ROOT.

253. Palæography. Elements of palæography, with practical exercises in the reading of facsimiles of Latin documents. *Second semester; hours to be arranged.* (Omitted 1913–14.) Mr. WESTERMANN.

254. Seminary in Ancient History. *First semester*, Organization and Administration of Egypt under the Ptolemies. *Sec-*

ond semester, Studies in Economic Conditions under the Roman Empire. *Tu.*, 7 *to* 9. (Omitted 1913–14.) Mr. WESTERMANN.

255. Seminary in Latin and Ancient History. See Latin 233. A study of the literary and inscriptional sources upon the principate of Augustus Caesar, especially the Monument of Ancyra. *Throughout the year; Th.*, 3:30 *to* 5:30. (Omitted 1913–14.) Mr. SLAUGHTER, Mr. WESTERMANN.

256. Seminary in Medieval History. Topics from the Crusades. A knowledge of three foreign languages is required. *Throughout the year; M.*, 2:30 *to* 4:30. Mr. MUNRO.

257. Seminary in Modern European History. The work will be selected in the field of Napoleonic institutions. *First semester.* Mr. COFFIN.

259. Seminary in History of the British Empire. Selected topics in modern economic and political history. *Throughout the year; Tu.*, 1:30 *to* 3:30. Mr. DENNIS.

261. Seminary in American History. A study of the fundamental factors underlying some limited period of American history. *First semester; Tu.*, 3:30 *to* 5:30. Mr. FISH.

262. Seminary in American History. The History of the West, with special reference to the later Jacksonian era. *Throughout the year; M.*, 2:30 *to* 4:30. Mr. PAXSON.

INDO-EUROPEAN COMPARATIVE PHILOLOGY

ASSOCIATE PROFESSOR LAIRD.

103. Elementary Sanskrit. *Throughout the year; M., W.*, 11. Mr. LAIRD.

104. Advanced Sanskrit. Kalidasa's Cakuntala. *Throughout the year; F.*, 11. Mr. LAIRD.

105. Latin Grammar. Lectures on the sounds and forms of the Latin language. *First semester; Tu., Th.*, 11. Mr. LAIRD.

106. Greek Grammar. Lectures on the sounds and forms of the Greek language. *First semester; Tu., Th.*, 11. (Omitted 1914–15.) Mr. LAIRD.

JOURNALISM

ASSOCIATE PROFESSORS BLEYER (chairman), BUTLER; MR. HYDE.

The courses in journalism are designed to familiarize the student with the methods of practical journalism, the development of the American press, the organization and the management of newspapers and magazines, and the essentials of newspaper advertising; and to give practical training in newspaper and magazine writing and editing. A journalism laboratory is maintained, equipped with typewriters, classified collections of newspapers and magazine articles, reference books, files of representative newspapers, and a large collection of newspapers from foreign countries. In connection with the courses in journalism, is given each year a series of special lectures by newspaper and magazine editors on various phases of journalistic work.

Instruction is offered by the department of political science, in the law of the press, including the law of copyright, libel, and other topics relating to the publication of magazines and newspapers. A special course in current political topics and their effective literary presentation is also given by the department of political science for the students in journalism. The reading and the study of representative German and French newspapers are provided for in special courses for journalism students, given by the German and Romance Language departments. The psychology of advertising is the subject of a course in the department of philosophy, the principles of advertising are considered in connection with courses in business administration, and a course in newspaper advertising is offered in the department of journalism. Courses in commercial correspondence and the writing of advertising booklets (English 4A and 4B) are open to students in journalism who are specializing in advertising. In the College of Agriculture are given courses in agricultural journalism and agricultural advertising.

MAJOR IN JOURNALISM—For a major in journalism are required, in addition to a thesis, not less than 14 units in journalism which

must include courses 2 and 3, and either 104 or 105; and not more than 24 units, which may include, besides courses 2 and 3, 104, 105, 110, and 130. In addition at least 16 units of English are required which must include English 1 and 30. Not more than 46 units of journalism and English, including a thesis, may be offered in the 120 units required for the degree of bachelor of arts.

Special provision is made for directing the work of graduate students in historical or contemporary phases of newspapers and magazines, as well as for those desiring special training for any kind of journalistic work.

University graduate scholarships offered annually are open to students in journalism. For the master's degree eight graduate credits in journalism and eight graduate credits in English are required.

For Undergraduates

1. Elements of Newspaper Writing. Practical talks on the work of the newspaper reporter, with practice in newspaper writing. Primarily for freshmen. *Throughout the year; Th.*, 11; *no credit.* Mr. BLEYER, Mr. HYDE.
2. Newspaper Reporting and Correspondence. Lectures and practice in all the details of the work of the reporter and correspondent including news gathering and newspaper writing. *Throughout the year; M., W., F.*, 10. Mr. BLEYER, Mr. HYDE.
3. Newspaper Editing. Instruction and practice in editing copy, correcting proof, writing headlines, rewriting, and other details of editing, and in the organization and methods of local, state, and national news gathering. Prerequisite, Journalism 2 or equivalent practice. *Throughout the year; Tu., Th.*, 10. Mr. BLEYER.

11. Journalistic German (German 11). Translation at sight from current German newspapers. For students in the Course in Journalism who have had German 2 or an equivalent. *Throughout the year; Tu., Th.*, 8; *one credit.* Mr. HAERTEL.
18. Journalistic French (French 18). Reading and study of Paris newspapers. Primarily for students in the Course

in Journalism who have had French 1, or an equivalent. *Throughout the year; Tu., Th.*, 9; *two credits; one in French, one in Journalism.* Mr. ERNST.

For Undergraduates and Graduates

104. Editorial Writing. Theory and practice of editorial writing. Open to students who have had considerable practice in writing. *Throughout the year; Tu., Th.*, 9. Mr. HYDE.

105. Special Feature and Magazine Work. Instruction and practice in preparing special articles for newspaper and magazine publication. Open to students who have had considerable practice in writing. *Throughout the year; Tu., Th.*, 11. Mr. BLEYER.

110. Seminary in Journalism. Various problems connected with the editing and publishing of newspapers and magazines are considered from year to year. *W.*, 2:30 *to* 4:30; *two credits.* Mr. BLEYER.

130. Newspaper Advertising. Lectures and practice work designed to familiarize students in the Course in Journalism with the purposes and the methods of newspaper advertising. Prerequisite—Psychological Principles of Advertising (Philosophy 119). *First semester; hours to be arranged; two credits.* Mr. BUTLER.

Agricultural Journalism. The details of preparing articles for farm papers. Lectures and practice work. *Throughout the year; two credits.* Mr. HOPKINS.

Methods of Farm Advertising. The principles and methods of advertising farm products, including livestock, seeds, etc., planning campaigns, writing advertisements, etc. Lectures and assignments. *Throughout the year; two credits.* Mr. HOPKINS.

Current Political Topics (Political Science, 132). Current political problems, with training in the discriminating use of sources and in effective literary presentation; designed for students preparing for journalism. Open to advanced students. *Second semester; Tu., Th.*, 10. Mr. ZILLMER.

The Law of the Press (Political Science 125). The law of copyright, literary property, libel, privileged publication,

and other topics relating to the publication of books and newspapers. *Second semester; Th.*, 2:30. Mr. HALL.

Psychological Principles of Advertising (Philosophy 119). A study of the fundamental principles of successful advertisement, with practice work in the problems involved. *Second semester; two sections; Tu., Th.*, 8 *and* 1:30. Mr. STARCH.

LATIN

PROFESSORS SHOWERMAN, SLAUGHTER (chairman); ASSOCIATE PROFESSORS FISKE, LAIRD; ASSISTANT PROFESSORS ALLEN*, BRANDT; MISS ROBERTS; MR. ROUSE.

The courses in Latin are divided into three groups:

1. B to 5, for undergraduates early in the college course form an introduction to advanced courses, and furnish an acquaintance with the best specimens of prose and verse. They may not be counted for the master's degree. B and A count toward the bachelor's degree and the language requirement in the University, but will not be accepted as part of a Latin major. 1 must precede all except B and A. 2 is recommended to students who intend to make Latin a major and is required of those who intend to teach Latin. It should be taken in the first year along with 1.

II. 108-123 are open to students who have completed 1 and 3, or an equivalent, and may be counted toward the master's degree. 107 is required of all students who desire the University teachers' certificate in Latin. It should be taken in the junior year. It may be counted toward the master's degree.

III. 225-233 are primarily for graduate students, and are ordinarily not open to undergraduates, or those who have completed less than thirty semester hours of undergraduate Latin.

Latin Major

The requirements for a major in Latin are, in addition to the thesis, twenty-four credits as a minimum. At least six credits, in addition to the thesis, should be chosen from courses 108 to 123, but no specific requirement of courses is made.

* On leave of absence for the second semester 1913–1914.

Course 122 and course 112, first semester, can not be counted toward the Latin major. Courses 2, 105, and 106 in *Greek* to the extent of six credits, may be counted toward a Latin Major.

For Undergraduates

B. Elementary Latin. The elements of Latin and Caesar's *Bellum Gallicum*, Bks. I–III. *Throughout the year; M., Tu., W., Th., F.*, 8. Two sections. Mr. ROUSE, Miss ROBERTS.

A. Cicero and Virgil. Four orations of Cicero and four books of Virgil's *Aeneid*. Some attention to writing Latin. *Throughout the year; M., Tu., W., Th., F.*, 10. Miss ALLEN, Mr. BRANDT.

1. Livy, Cicero, and Terence. Livy, Books I and XXI; Cicero, *De Senectute*, and Terence, *Phormio* and *Andria*. Three sections. *Throughout the year; M., W., F.*, 9, 10, *and* 1:30. Mr. FISKE, Mr. SHOWERMAN, Mr. SLAUGHTER.

2. Prose Composition, supplementary to the reading of course 1. Three groups. *Throughout the year; Tu.*, 9, 10 and 11. Mr. FISKE, Mr. ROUSE.

3. Horace. Odes, satires, and epistles. *Throughout the year; M., W., F.*, 9. Mr. SLAUGHTER, Mr. SHOWERMAN.

5. Pliny, Martial, and Catullus. Intended to supplement 3, but may be taken without it. When taken by juniors or seniors may be counted as half of the advanced reading course required of all who take Latin as a major or minor. *Throughout the year; Tu., Th.*, 9. Miss ALLEN, Mr. SLAUGHTER.

For Undergraduates and Graduates

107. Advanced Prose Composition with a special study of Latin syntax. Must be preceded by 2. *Throughout the year;* Tu., Th., 1:30. Mr. FISKE.

108. Cicero's Letters and Orations. A reading course with special attention to the life and personality of Cicero. *First semester; M., W., F.*, 9. Mr. SHOWERMAN.

109. Plautus, Terence, and Seneca. A reading course giving a general survey of the Roman drama. *First semester; M., W., F.*, 9. Mr. SHOWERMAN.

110. Lucretius. *De Rerum Natura* I, III, and V, and selections from the remaining books. *Second semester; M., W., F.*, 10. Mr. SLAUGHTER.

111. Virgil. *Aeneid* VII–XII, with selections from Virgil's other works. *First semester; M., W., F.*, 10. Mr. SLAUGHTER.

112. Life of the Greeks and Romans. Lectures illustrated by lantern slides. Open to all students. A knowledge of Greek and Latin is not essential. The lectures on Greek life can not be counted toward a Latin major. *Throughout the year; Tu., Th.*, 3:30. Mr. SHOWERMAN.

113. Literary Criticism. Selections from early Roman poetry and from Cicero, Horace, and Quintilian. *First semester; M., W., F.*, 2:30. Miss ALLEN.

114. Oratory and Philosophy. Lectures on the history of Roman oratory and philosophy and readings from Cicero and Seneca. *Second semester; M., W., F.*, 2:30. Miss ALLEN.

121. Ovid, Tibullus, Propertius. In connection with a systematic study of classical mythology. *Throughout the year; M., W., F.*, 2:30. Miss ALLEN.

116. The Teaching of Latin. A course on the methods and materials used in the teaching of Latin, in secondary schools. Lectures, reports, discussions, and practice teaching. Special attention to Caesar. Open to seniors who have had not less than twenty credits of Latin. *Throughout the year; M., W.*, 9. Mr. BRANDT.

117. Latin Literature. A general survey from the earliest period to the reign of Trajan, based on readings from Latin poetry and Latin prose writers. *Throughout the year; M., W., F.*, 10. Mr. SLAUGHTER.

118. Roman Satire. Selections from the works of Ennius, Lucilius, Varro, Horace, Seneca, Persius, Petronius, and Juvenal. Lectures on the origin and development of Roman satire. *Throughout the year; Tu., Th.*, 10. Mr. FISKE.

119. Roman Historians to Tacitus. Selections from the Annalists, Cicero, Caesar, Nepos, Sallust, Livy, and Tacitus. *Throughout the year; Tu., Th.*, 10. Mr. FISKE.

120. Literature of the Late Empire. Reading of Pagan and Christian authors, with lectures on the religion and literature of the period. The *Cupido et Psyche* of Apuleius and the *Octavius* of Minucius Felix will be read. *Second semester; M., W., F.*, 8. Mr. SHOWERMAN.

122. Classical Art. (See Greek 115.) Illustrated lecture course on the history and appreciation of Greek sculpture, architecture , and painting; introductory to the study of art; Greek and Latin not necessary. *First semester; Tu., Th.*, 4:30. Mr. SHOWERMAN.

123. Roman Monuments. Illustrated lectures on the remains of ancient Rome, with special reference to history and literature. Latin not essential. *Second semester; M., W., F.*, 11. Mr. SHOWERMAN.

124. Thesis Course. Development of Latin Prose Style. *Throughout the year; M., W.*, 2:30. Mr. BRANDT.

For Graduates

225. Latin Grammar. Lectures on the sounds and forms of the Latin language. *First semester; Tu., Th.*, 11. Mr. LAIRD.

226. Latin Syntax. Lectures on Latin syntax, illustrative of the historical method. *Second semester; Tu., Th.*, 11. Mr. LAIRD.

227. Religion of the Greeks and Romans. Lectures, studies, and reports on the mythology, ritual, and religious institutions of the Greeks and Romans. *Throughout the year; two credits.* Mr. FISKE.

228. Roman Archaeology. Consists of 123, with additional hour for reports. *Second semester; Th.*, 2:30. Mr. SHOWERMAN.

230. Latin Literature. Lectures and assigned readings, with a minute examination of the authors read. *Throughout the year. M., W., F.*, 9. Miss ALLEN, Mr. BRANDT.

232. Pro-Seminary. In 1914–15 the work will be based on Suetonius, *Augustus. First semester; Tu.*, 4:30. Mr. SLAUGHTER.

233. Latin Seminary. The work of the seminary varies from year to year according to the author or subject under discussion. In 1914–15 the work of the seminary will be based on the *Monumentum Ancyranum.* The beginnings of the Roman Empire will be studied. *Throughout the year; Th.*, 3:30 *to* 5:30. Mr. SLAUGHTER, Mr. WESTERMANN.

MANUAL ARTS

PROFESSORS CRAWSHAW (chairman), PHILLIPS; ASSISTANT PROFESSORS GODDARD, VARNUM; MR. DORRANS, MR. BEST, MISS ANDERSON.

The department of Manual Arts, in coöperation with allied departments aims to reach three principal classes of students; first, those desiring special intensive training which will fit them for positions as directors and supervisors of manual arts, including freehand and mechanical drawing and the crafts, and vocational work in public school systems; second, those who, in addition to the preparation to teach some one of the regular academic subjects of the high school, are seeking to equip themselves to teach one or more of the special lines of manual arts work which might profitably be introduced into the curriculum of the smaller high schools; third, those students for whom such courses, as those announced, would serve to enrich the traditional program of liberal study.

The department, established in the College of Letters and Science in the fall of 1910, conducts courses in the several lines of shop work, drawing and design taught in public high schools and in subjects which elaborate upon the teaching of manual training and vocational education such as Organization and Maintenance, History and Literature, Supplies and Equipment, etc. Coöperation with several allied departments is maintained.

Adequate facilities for all laboratory courses are made possible by the use of the full equipment of the College of Engineering shops, laboratories, and drawing rooms. In addition to these, however, the department has fitted up a large room equipped especially for wood working classes and for the study of supplies and equipment. Through the kindness of many manufacturers of shop and drawing equipment a large number of exhibits are housed in this room and form a rather complete museum on the Manual Arts. The room is both a laboratory and lecture room with facilities for demonstration work and investigation. In it the Wisconsin High School classes meet for shop work and drawing. University students specializing in manual arts act as instructors for these classes.

Large and well lighted rooms on the top floors of the Engineering Building and University Hall are well equipped for work in freehand drawing and design. The Mining Laboratory is used for departmental work in clay and concrete. The equipment for art metal work is installed in a room in the Engineering Shop Building.

Courses announced, with usual privileges for minor and major work, are open to election by all students subject to the general university and special college regulations governing elections.

Courses of Instruction, 1914–1915

2. Mechanical Drawing. An elementary course in mechanical drawing covering the following subjects: use of instruments, perspective and working sketches, lettering and simple working drawing introducing the theory of projections, revolutions, sections, intersections, and machine sketching. Machine drawing. *Throughout the year; three two-hour drawing periods each week. Time of any engineering drawing section; teaching conferences to be arranged. Three credits each semester.* Mr. PHILLIPS, Mr. ORTH.

4. Elementary Bench Woodwork. This course includes (a) bench work appropriate for the upper grammar grades and the first year of high school involving applications of mechanical drawing and design; (b) student demonstrations and practice teaching in the Wisconsin High School. Prerequisite, credit or registration in course 2. *First semester; one lecture and eight hours of laboratory work each week; M., W., F.,* 1:30; *shop hours to be arranged; three or more credits.* Mr. CRAWSHAW, Mr. DORRANS.

5. Furniture and Cabinet Design and Construction. An advanced course. The course includes, (a) the design of furniture; (b) furniture and cabinet making; (c) methods of teaching wood work with practice teaching in the Wisconsin High School. Prerequisite, course 4. *Second semester; one lecture and eight hours of laboratory work each week; M., W., F.,* 1:30; *shop hours to be arranged; three or more credits.* Mr. CRAWSHAW, Mr. DORRANS.

5a. Wood Finishing. Intensive study and practice in the mixing and applying of finishing materials for interior woodwork and furniture. *Second semester; Tu., Th.*, 1:30 *to* 4:30; *two credits.* Mr. DORRANS.

5b. The Installation and Care of Woodworking Machines. Lectures upon equipment, its manufacture, meritorious points, installation, etc. Model arrangements planned for an equipment to be installed under given conditions. Practice in unit and group installation work. General care of equipment. Prerequisite, course 5. *First semester; Tu., Th.*, 1:30 *to* 4:30; *two credits.* Mr. DORRANS.

6. Wood Turning. A study of the geometrical principles involved and their application in the several wood turning cuts. Wood turning practice in making applied projects in spindle, face plate, and chuck work. *Each semester; shop hours to be arranged; two or more credits.* Mr. CHISHOLM.

6a. Elementary Pattern Making. (a) principles of draft, shrinkage, and finish; (b) patterns requiring simple cores; core making and moulding practice; (c) lectures and demonstrations; (d) courses of study and methods of teaching. Prerequisite, courses 2 and 4. *Each semester; one lecture and at least three hours of shop work each week; shop hours to be arranged; two or more credits* Mr. CHISHOLM.

6b. Pattern Making. An advanced course emphasizing the design and construction of patterns for a complete machine. Complicated cores. Plaster of Paris patterns. Commercial pattern shop methods. *Each semester; shop hours to be arranged; two or more credits.* Mr. CHISHOLM.

7. Foundry Work. Individual practice in bench and machine moulding, and in the handling of cupola and brass furnaces. Particular attention given to the mixing of metals. Prerequisite, credit or registration in course 6. *Each semester; one lecture and at least three hours of shop work each week; hours to be arranged; two or more credits.* Mr. PAYTON, Mr. CHISHOLM.

8. Forge Work. Work in handling iron and steel in the fundamental processes of forging, welding, tempering, and annealing. Special attention to arts-crafts projects in

wrought iron, courses of study and methods of teaching. *Each semester; one lecture and at least three hours of shop work each week; shop hours to be arranged. Th.*, 8; *two or more credits.* Mr. GODDARD, Mr. SHUMANN.

9. Machine Shop Work. Elementary Course: bench work in chipping and filing and sheet metal. Advanced Course: project work on machine tools. Supplementary subjects; courses of study, shop systems and methods. Prerequisite, course 6. *Each semester; one lecture and at least three hours of shop work each week; shop hours to be arranged; two or more credits.* Mr. GODDARD.

DRAWING AND DESIGN

1. Freehand Drawing and Perspective. An elementary course in the principles of freehand drawing, perspective and cast shadows with the best methods of rendering in pencil, pen and ink, and water color. Still life drawing from models, historic ornament, interior and exterior perspective, blackboard drawing. Special problems in perspective sketching for students with special interests. *First semester; one lecture; three two-hour drawing periods each week. M., W., F.*, 10 *to* 12; *three credits.* Mr. VARNUM, Miss ANDERSON.

1a. Cast Drawing, Water Color Rendering. Advanced Course in Manual Arts 1. This course is intended to increase the color and form perception of the student. The laws of composition are applied to groups of still life objects and out-of-door subjects. Cast drawing from the antique figure and historic ornament. Theoretical shading and wash drawing for students with special interests. Attention is given to a detailed course of study in drawing for the public schools. *Second semester; one lecture; three two-hour drawing periods each week. M., W., F.*, 10 *to* 12; *three credits.* Mr. VARNUM, Miss ANDERSON.

3. Constructive and Applied Design. The fundamental principles of good constructive design and its appropriate decorative treatment. Specific attention is given to the different materials of the industrial crafts. Demonstrations are given illustrating the treatment and technique of the different materials in all grades of the public

schools. Prerequisite, credit or registration in Manual Arts 1 and 2. *First semester; one lecture; three two-hour drawing periods each week; Tu., Th.*, 1:30 *to* 4:30; *three credits.* Mr. VARNUM.

3a. Applied and Constructive Design Seminary. Problems under investigation by all shop laboratory courses. Preparation of working drawings embodying decorative and constructive principles. *Throughout the year; M., W.*, 9; *Tu., Th.*, 1:30 *to* 4:30; *one credit.* Mr. VARNUM.

13. Applied Design; Constructive and Decorative Metal. The design and construction of projects in sheet and rod metal—escutcheons and hinges appropriate for the enrichment of furniture. Raised and beaten copper forms for electric and other serviceable utensils, lamps, simple jewery enriched with semi-precious stones. Application to public school work. *Second semester; three two-hour periods each week; Tu., Th., S.*, 8 *to* 10; *three credits.* Mr. VARNUM, Miss ANDERSON.

*14. Applied Design; Clay, (pottery), Concrete. Modeling in clay and cement as a means of understanding, delineating, and decorating form. Methods and practice in decoration and firing. Study and preparation of glazes. Large projects in cement and concrete construction. Application to public school work. *First semester; three two-hour periods each week; Tu., Th., S.*, 8 *to* 10; *three credits.* Mr. VARNUM, Miss ANDERSON.

20. History and Appreciation of Design. Architectural Composition and History. An illustrated lecture course. The main purpose is to acquaint the student with what constitutes a broad fundamental basis of design governing the products of the industrial arts, to guide him in appreciation or as a prospective purchaser or builder. Analysis of best examples of ancient, medieval, and modern constructive and applied design. *First semester; M., W., F.*, 1:30; *three credits.* Mr. VARNUM.

20a. History and Appreciation of Design. Municipal Art and Architecture. An illustrated lecture course. Continuation of Manual Arts 20; architectural composition applied to city planning. Arrangement and lighting of city and

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* Note:—For related courses see Mining and Metallurgy 1, 2, 6.

town blocks to secure uniformity of design. Planning of civic centers with class demonstration by means of low relief models. Excess condemnation. *Second semester; M., W.*, 1:30; *two credits.* Mr. VARNUM.

For Undergraduates and Graduates

110. History and Literature of Manual Arts. This course is designed to give a background for the work of the teacher and supervisor of the manual arts. Special attention is given to the development of manual arts and industrial education in this and European countries and to its literature. *First semester; two lectures each week; M., W.*, 10; *two credits.* Mr. CRAWSHAW.

111. Organization. Courses and Equipment for Manual Arts and Vocational Schools. Methods of introducing and maintaining manual training, drawing, and vocational work in different classes of schools and in different grades. A detailed study of courses for different media. Equipments planned. Specifications and orders written for equipment purchases. *Second semester; two lectures each week; M., W.*, 10; *two credits.* Mr. CRAWSHAW.

112. The Teaching and Supervision of Manual Arts. Methods of teaching and supervising constructive work in elementary and high schools. The problem of industrial education in all-day, continuation, and night schools. Lectures and discussions; individual study of class room methods; demonstration, and practice teaching. *Throughout the year; two lectures each week; M., W.*, 11; *two credits each semester.* Mr. CRAWSHAW.

Note.—The lectures in shop laboratory courses each require two hours of preparation. Those who elect manual arts laboratory courses with a view to teaching should devote as much time as possible to laboratory work.

112a. Lower Grade Craftwork. The making of projects in clay, textiles, paper, wood, etc., suitable for elementary schools. Advanced projects for those interested as craftsmen. *Each semester; M., W., F.*, 1:30 *to* 4:30; *two to three credits.* Mr. BEST.

115. Manual Arts Seminary. Reports and discussions upon the general problems of the manual and industrial arts.

Special consideration given to mechanical drawing and those related branches of shopwork commonly taught in public high schools. *Throughout the year; Tu.*, 4:30; *One credit each semester.* Mr. Crawshaw.

MATHEMATICS

Professors Slichter (chairman), Van Vleck; Associate Professor Skinner; Assistant Professors Dowling, Dresden, Hart, March, Wolfe; Dr. Allen, Dr. Burgess, Dr. Clements, Mr. Nyberg, Mr. Simpson, Mr. Taylor, Mr. Fry, Dr. Sanderson, Mr. Keffer, Miss Houser, Miss MacMillan, Mr. Woodmansee.

The courses in mathematics are divided into three groups, as follows:

A. Courses 1 to 8 are planned to give a working knowledge of elementary mathematics. All courses are elective except courses 1 and 7, required of students in the Course in Commerce.

Students who elect the minimum amount of mathematics in fulfillment of requirement "c" (see requirement for degree of Bachelor of Arts), may choose six hours from any of the first eight courses, provided courses 3 and 4 are not both chosen.

Students electing mathematics with a view to teaching the subject in the high schools are referred to the section on mathematics in the course for the training of teachers.

It will be advantageous for all students expecting to elect mathematics to present at least one and one-half units of algebra for entrance.

B. Courses 111 to 124 are designed for students who desire to continue mathematical study, and who have completed the requisite courses in group A.

C. Courses 241 to 267 are intended primarily for graduate students.

Major and Minor in Mathematics

The requirements for an undergraduate major in mathematics consist of a thesis, courses 5 and 6, and a minimum of 11 credits from courses for undergraduates and graduates, inclu-

sive of course 112 or 113. The requirements for mathematics as a major or minor subject in the Course for the Training of Teachers are given on page 345.

For Undergraduates

1. Algebra. For students presenting one unit of algebra for entrance; prerequisite to all other courses in mathematics except 2 and 8. Twelve sections the first semester and three sections the second semester. *One semester; three credits.* Mr. SKINNER, Miss SANDERSON, Mr. CLEMENTS, Mr. DRESDEN, Mr. SIMPSON, Mr. KEFFER.
2. Trigonometry. Plane trigonometry and logarithms; prerequisite to all other courses in mathematics except 1, 7, 8, and 124. Three sections the first semester and six sections the second semester. *One semester; three credits.* Mr. DOWLING, Mr. SKINNER, Miss SANDERSON, Mr. CLEMENTS, Mr. DRESDEN, Mr. SIMPSON.
3. Analytic Geometry. Recommended to students presenting one and one-half units of algebra for admission and elective to students who have taken or are taking course 2. Three sections. *Second semester; three credits.* Mr. DOWLING, Miss SANDERSON, Mr. SIMPSON.
4. Analytic Geometry. Elementary course. *Throughout the year. Section* 1, *Tu., Th.*, 10. Mr. SIMPSON. *Section* 2, *Tu., Th.*, 11. Miss SANDERSON.
5. Calculus. Elementary course. Differentiation and integration of functions with the usual geometric and mechanical applications. Students who intend to specialize in mathematics or who desire calculus for applications in physics and science are advised, if possible, to take course 5 in the sophomore year. *Throughout the year. Section* 1, M., W., F., 10. Mr. DOWLING. *Section* 2, *M., W., F.*, 11. *First semester*, Mr. VAN VLECK; *second semester*, Mr. SKINNER.
6. Determinants and Analytic Geometry of Three Dimensions. *First semester; M., W., F.*, 2:30. Mr. DRESDEN.
7. Commercial Algebra. A course adapted to the needs of students of economics and finance. Required of students in the Course in Commerce. *Three credits. One section the first semester, six sections the second semester.* Mr. CLEMENTS, Mr. DRESDEN, Mr. SIMPSON, Mr. KEFFER.

8. Solid Geometry. *Two sections. First semester; three credits.* Mr. CLEMENTS, Miss HOUSER.

9. Introduction to Mathematical Thought. A course designed for students who have no desire to continue systematic study in mathematics beyond freshman year. *Second semester; M., W., F.*, 2:30. Mr. DRESDEN.

10. The Teaching of Mathematics. Open to seniors who have had course 5 and to other seniors upon approval of the department. *Each semester; Tu., Th.*, 3:30. Mr. HART.

11. The Content of Secondary Mathematics. Admission to course restricted to seniors or graduates enrolled in the Course for the Training of Teachers. *First semester; Tu., Th.*, 11. Mr. HART.

For Undergraduates, College of Engineering

100. Sub-freshman Algebra. For students who fail to pass the examination given to all engineering freshmen for admission to course 101. *First semester; M., Tu., W., Th.*, 8 *and* 1:30. Miss MACMILLAN, Mr. WOODMANSEE.

101. Elementary Analysis. This is a technical course including a variety of work in graphic methods and a study of the fundamental functions of analysis, supplemented with practical work in the computing room. Required of freshmen in engineering. Eight sections first semester, two sections second semester. *One semester; M., Tu., W., Th., F.* Mr. SLICHTER, Mr. CLEMENTS, Mr. FRY, Mr. NYBERG, Mr. TAYLOR, Mr. WOLFF.

Thesis Course. *Throughout the year; two hours weekly.* Mr. SKINNER; 1914–15 Mr. DOWLING.

102. Elementary Analysis. A continuation of 101, with further work in graphic methods and nomography. Required of freshmen in engineering. One semester; *M., Tu., W., Th., F. Repeated each semester.* Mr. SLICHTER, Mr. CLEMENTS, Mr. FRY, Mr. BURGESS, Mr. NYBERG, Mr. TAYLOR.

Note:—On account of the large amount of special work in courses 101 and 102, a special course is organized for students who have had trigonometry and analytic geometry in colleges of pure science.

103. Elementary Analysis. A special course in the technical parts of 101 and 102 for students who have had trigonometry and analytic geometry. *First semester; M., Tu., W., Th., F.*, 1:30. Mr. BURGESS.

104. Calculus. Differential and Integral Calculus. For all courses. Required of all sophomores in engineering. *Repeated each semester.* Mr. SLICHTER, Mr. MARCH, Mr. WOLFF.

105. Calculus. Continuation of 104 for all courses. Elementary work in differential equations is given in this course. Required of sophomores in engineering. *Repeated each semester.* Mr. SLICHTER, Mr. WOLFF, Mr. MARCH, Mr. FRY.

106. Calculus. For students who have had a good course in differential calculus. *First semester; M., Tu., W., Th., F.,* 2:30. Mr. NYBERG.

110. Higher Mathematics. Differential Equations. Definite Integrals, Fourier Series, and other subjects of immediate importance to engineering students. Elective to juniors, seniors, and graduate students. *Throughout the year; M., W., F.,* 11. Mr. WOLFF.

For Undergraduates, College of Agriculture

201. Mathematics for Agricultural Students. In this course the following subjects will be briefly studied: Statistical graphs, with the determination of simple emperical laws; numerical calculation with logarithms and slide-rule; the circular functions, with their application to the solution of triangles; errors of calculated quantities due to errors of observation; the progressions; combinations, permutations, and the binomial theorem; the theory of probability; statics, compression, and tension in truss members. *Repeated each semester; M., Tu., W., Th., F.,* 8 *and* 3:30. Mr. WOLFF, Mr. TAYLOR.

For Undergraduates and Graduates

111. Advanced Calculus. A working course. Partial derivatives, envelopes, line and multiple integrals, etc., with applications to problems in geometry and mechanics. *First semester; M., W., F.,* 10. Mr. SKINNER.

112. Differential Equations, with applications to geometry and mechanics. This course is designed primarily to be a working course for students in mathematics and physics. *Second semester; M., W., F.,* 10. Mr. SKINNER. (1914–15.) Mr. VAN VLECK.

113. Theoretical Mechanics. An elementary course in analytical mechanics. This course may be taken by those who have had analytic geometry and calculus. *Throughout the year; M., W., F.*, 11. Mr. SLICHTER.

115. Projective Geometry. Synthetic treatment. *Throughout the year; Tu., Th.*, 11. Mr. DOWLING.

125. Theory of Equations and Introduction to Higher Algebra. *Second semester; M., W., F.*, 2:30. Miss SANDERSON.

114. Modern Analytic Geometry. Homogeneous point and line co-ordinates, projective transformations, etc. *Second semester; three credits.* (Omitted 1913–1914.)

119. Differential Geometry. The application of the differential calculus to the geometry of twisted curves and surfaces. *Second semester in alternate years; three credits.* (Omitted 1913–14.) Mr. SKINNER.

116. Introduction to Higher Mathematics. A course for students majoring in physics. Course 112 is a prerequisite. *Throughout the year; M., W., F.*, 8. Mr. MARCH.

117. Vector Analysis with applications to physics and geometry. *Second semester; three credits.* Mr. MARCH.

118. Theory of Probabilities and Method of Least Squares. This course is adapted to the needs of students of science and economics. Calculus a prerequisite. *Second semester; Tu., Th.*, 10. Mr. SLICHTER.

120. Theory of Analytic Functions. *In alternate years throughout the year. Three credits.* (Omitted 1913–14.) Mr. VAN VLECK.

121. Theory of Functions of a Real Variable, preceded by an introduction to the theory of point sets. A critical study of the theorems necessary to advanced work in analysis, with application. *In alternate years; throughout the year; three credits.* (Omitted 1913–14.) Mr. VAN VLECK.

124. The Mathematics of Life Insurance. An introductory course designed to meet the needs of students who wish to acquaint themselves with the fundamental principles of life insurance. Course 7 is prerequisite. A knowledge of the calculus is desirable but not necessary. *Throughout the year; Tu., Th.*, 10. Mr. DOWLING.

For Graduates

These courses are varied from year to year according to the needs of the students, other subjects being introduced in addition to those here announced.

241. Elliptic Functions. Arranged to give a working knowledge of the functions of Weierstrass and Jacobi. *Throughout the year; Tu., Th.*, 9. (Omitted 1914–15.) Mr. DOWLING.

244. Higher Geometry, with special reference to line geometry and its applications to mechanics. *Throughout the year; Tu., Th.*, 9. (Omitted 1913–14.) Mr. DOWLING.

243. Modern Theory of Differential Equations. *Throughout the year; three times weekly.* (Omitted 1913–14.) Mr. VAN VLECK.

246. Groups of Finite Order. A study of the fundamental properities of groups, followed by an examination of some of the more important groups and their applications to geometry and analysis. *Throughout the year; Tu., Th.*, 3:30, *and a third hour.* (Omitted 1914–15.) Mr. SKINNER.

250. Theoretical Hydrodynamics. The theory of ordinary and of vortex motion of fluids followed by a study of theory of waves in liquids. *Throughout the year; Tu., Th.*, 11, *and a third hour to be determined.* (Omitted 1913–14.) Mr. SLICHTER.

251. Graphical Methods. An advanced course, with special reference to the treatment of ordinary and partial differential equations. *First semester; three times weekly.* Mr. SLICHTER.

252. Theory of Elasticity and Terrestrial Mechanics. The motions of deformable bodies with special emphasis upon periodic motions and normal modes and the application to problems of earth movements, the modern theory of earthquakes and of the tides. *Throughout the year; M., W., F.*, 10. (Omitted 1914–15.) Mr. SLICHTER.

261. Seminary in the Theory of Functions of a Real Variable. *Throughout the year; Tu., Th.*, 11; *W.*, 3:30. Mr. VAN VLECK.

263. Higher Algebra, with special attention to the theory of quadratic forms and elementary divisors. *First semester; three times weekly.* (Omitted 1913–14.) Mr. SKINNER.

265. Differential Equations of Mathematical Physics. The solution of boundary value problems of physics by Fourier's series, Bessels' functions, spherical harmonics, etc. *First semester; M.*, 3:30; *Tu., Th.*, 11. (Omitted 1914–15.) Mr. MARCH.

267. Calculus of Variations. *Throughout the year; M., W., F.*, 9. *First semester*, Mr. VAN VLECK; *second semester*, Mr. DRESDEN.

MATHEMATICAL CLUB.—For instructors, graduates, and seniors making mathematics their major. The object of the club will be to follow important recent developments in mathematics, whether in periodical literature, memoirs, books, or theses.

METEOROLOGY

MR. E. R. MILLER OF THE U. S. WEATHER BUREAU

The courses in meteorology are intended to serve three purposes: to afford a general survey of the atmospheric processes such as might reasonably form part of a liberal education, to prepare students of agriculture, commerce, engineering, journalism, medicine, physical geography, etc., for the scientific treatment of meteorological and climatological questions of importance in their professions, and to fit students for the investigation of special problems in meteorology.

For Undergraduates

1. Weather and Climate. The circulation of the atmosphere, storms, weather, climate. Practical exercises in observing the weather, constructing weather maps and climatic charts, and forecasting the weather. Prerequisites, Elementary Physics. *First semester; hours to be arranged; two credits.* Mr. MILLER.

2. Climate and Man. The relations of climate to hygiene, industry, agriculture, and forestry. Prerequisite, course 1, or Geology 4, or equivalent. *Second semester; hours to be arranged; two credits.* Mr. MILLER.

For Undergraduates and Graduates

103. Meteorology. The principles and theories of atmospheric phenomena, exercises in computation and reduction of observations. Prerequisites, Mathematics 111 and 112, and Physics 2, or equivalents. *First semester; hours and credits to be arranged.* Mr. MILLER.

106. Climatology. Climatic factors, and the methods of statistical climatology, solar climate and the chief varieties of physical climate, change of climate. *Second semester; hours and credits to be arranged.* Mr. MILLER.

For Graduates

204. Solar radiation and its related periodic phenomena. *Throughout the year.* Mr. MILLER.

205. Climatology of selected areas. *Throughout the year.* Mr. MILLER.

MUSIC

PROFESSOR COERNE (chairman), *Emeritus* PROFESSOR PARKER, PROFESSORS DYKEMA, HENMON; ASSISTANT PROFESSORS LOCKE, REGAN; MISS BERGMAN, MISS CONLON, MISS EASTMAN, MR. VON GELTCH, MR. JONES, MR. MANN, MRS. SANDBERG, MRS. SANDERS, MR. SAUGSTAD, MR. ADAMS.

The courses in music, except course 1, are open as electives to students, freshmen excepted, in any department of the University who show sufficient musical ability to pursue them with profit, and receive the same credit as similar courses in other departments of the University, except when otherwise specifically stated in the following explanatory statements.

Course 1 is open to election in the freshman year by candidates for the degree of Bachelor of Arts, in addition to a minimum of fourteen hours, but does not count as a part of the required 120 credits.

Students may be admitted to advanced courses on examination.

Students may elect one or more studies in applied music* on recommendation of the Director of the School of Music, but without credit toward graduation except as specified under course 81.

See the statement of the School of Music. (See index.)

Courses

These courses give prominence to analytical, critical, and historical study, both in distinctive courses and in the methods generally pursued, and thus afford opportunity for study, not only to those specializing in composition, but also to those who, without technical skill, wish to acquire a more intelligent appreciation of music.

For Undergraduates

Courses 5 to 65 continue throughout the year, and cannot be entered in the second semester except on examination.

1. Theory of Music. Elements of Music. Introductory course, outlining the scientific basis of music and its structural elements, rhythmic, melodic, harmonic, and formal. No preparation necessary. For credits see second paragraph on previous page. *First semester; M., W.*, 2:30; *two credits.* Miss EASTMAN.
2. Theory of Music. Elements of Form. *Second semester; M., W.*, 2:30; *two credits.* Miss EASTMAN.
5. Elementary Harmony. This course treats of general theory, harmony, chords and their mutual relationships, non-harmonic tones, modulation, and analysis. It is intended that the ability to harmonize a given melody in soprano or bass shall be acquired in the course. Prerequisite, the ability to read and play simple four-part production, and enunciation. Two sections. *M., W., F.*, 3:30; *three credits.* Miss EASTMAN.
11. Ear-Training and Sight-Reading. *First Year.* Class drill in staff-notation and in sight-singing, with emphasis laid upon tonal relations as a practical basis for the study of

* Note.—By the term "applied music" is meant special instruction in voice culture or some instrument, as indicated in course 81.

harmony, and with attention given to ear-training, tone production, and enunciation. Two sections. *M., W., F., 8, and Tu., Th., S.,* 10; *two credits.* Miss CONLON.

21. Ear-Training and Sight-Reading. *Second Year.* Continuation of course 11. *Tu., Th.,* 9, *one credit.* Mr. JONES.

31. Public School Music. For Grade and High School Teachers. *M., W.,* 9; *two credits.* Mr. DYKEMA, Miss CONLON.

41. Public School Music. For Supervisors. Methods. *First Year. M., W., F.,* 10; *three credits.* Mr. DYKEMA, Miss CONLON.

42. Public School Music. For Supervisors. Practice. *First Year. M., W.,* 11; *one credit.* Mr. DYKEMA, Miss CONLON.

43. Public School Music. For Supervisors. Applied Harmony, Ear-Training and Sight-Reading. (Includes course 11.) *First Year. M., Tu., W., Th., F.,* 8; *four credits.* Miss EASTMAN, Miss CONLON.

44. Public School Music. For Supervisors. General Education. Introductory. *First Year. Hours to be arranged; two credits.* Mr. HENMON, Mr. JONES.

51. Public School Music. For Supervisors. Methods. *Second Year. M., W., Th.,* 8; *two credits.* Mr. DYKEMA, Mr. JONES.

52. Public School Music. For Supervisors. Practice. *Second Year. M., W.,* 11 *and* 1:30; *two credits.* Mr. DYKEMA, Mr JONES.

61. Advanced Harmony. Prerequisite, course 5. *M., W.,* 9; *two credits.* Mr. LOCKE.

65. Counterpoint. Prerequisite, course 61. *M., W.,* 10; *two credits.* Mr. LOCKE.

71. Appreciation of Music. Lectures, with illustrations on the pianoforte, on musical structure, methods, aesthetics, and criticism. The chief forms studied are the Aria, Anthem, Rondo, and Sonata, followed by the analysis of larger compositions such as symphonies and oratorios. Representative operas, such as Bizet's "Carmen," Gounod's "Faust," Verdi's "Aida," are reproduced on an electric piano player and an electric victrola, together with illustrated scenic effects by means of lantern slides. Previous musical knowledge and technical skill are not es-

sential for the appreciation of this course. Open to new students. *First semester; Tu., Th.*, 11; *two credits.* Mr. COERNE.

72. Masterpieces of Music. Analytical study of both classical and modern masterpieces. Wagner's "Ring of the Nibelungen" and other dramatic works are reproduced and illustrated as in course 71. Open to new students. *Second semester; Tu., Th.*, 11; *two credits.* Mr. COERNE.

75. History of Music. Lectures, with recitations and illustrations, on the development of the art, from ancient times through the period of Bach and Händel. Open to new students. *First semester, Tu., Th.*, 2:30; *two credits.* Mr. COERNE.

76. History of Music, from the period of Bach and Händel to the present day, with emphasis on the lives and personalities of the great masters. Open to new students. *Second semester; Tu., Th.*, 2:30; *two credits.* Mr. COERNE.

81. Applied Music. Advanced Pianoforte Playing, Voice Culture, Organ, or Violin. Junior and senior years only. Hours and credits to be arranged with the instructor and the Director of the School of Music, but not to exceed a total of ten semester hours. Miss BERGMAN, Miss CONLON, Miss EASTMAN, Mr. VON GELTCH, Mr. LOCKE, Miss REGAN, Mrs. SANDBERG, Mrs. SANDERS.

85. Applied Music. Ensemble Playing and Singing. Overtures and symphonies arranged for pianoforte for four or eight hands. String quartets and trios. Vocal duets and trios. Outside reading in connection with the works studied is required. Junior and senior years only. Pianofortes; two sections: *Tu., Th.*, 2:30 *and* 3:30. Stringed Instruments; one section: *hours to be arranged.* Voices; two sections: *Tu., Th.*, 2:30 *and* 3:30; *two credits.* Mr. LOCKE, Mrs. SANDBERG, Mr. VON GELTCH, Miss BERGMAN, Mrs. SANDERS.

91. Orchestral Music. Rehearsals of the University Orchestra. Prerequisite, the ability to play some instrument. *W.*, 7 *p. m. First year without credit, second year, one credit for each semester.* Mr. MANN, Mr. DYKEMA.

95. Choral Music. Rehearsals of the Choral Union. *Tu.*, 7 *p. m.; one credit for the whole year.* Mr. DYKEMA.

For Undergraduates and Graduates

*101. Practical Composition: Introductory. Detailed study of rhythm, melody, harmonic accompaniment, and musical form. Contrapuntal treatment of voice parts. Imitation. The writing of pieces for the pianoforte, voice, violin, and organ such as etudes, classical dances, inventions, two-part canons, songs, glees, preludes. Prerequisite, course 61. *Hours to be arranged; two credits.* Mr. COERNE.

*111. Instrumentation: Orchestra, band, and chamber music. Prerequisite, course 61. *Hours to be arranged; two credits.* Mr. COERNE.

165. Double Counterpoint, Canon, and Fugue. Analysis and composition. Examples taken from Bach and others of the classical period, as well as from modern masters. Prerequisite, course 65. *Hours to be arranged; two credits.* Mr. COERNE.

For Graduates

*201. Free Composition: Advanced. Prerequisite, course 101 or equivalent. *Hours to be arranged.* Mr. COERNE.

*211. Modern Orchestration: Symphonic and Dramatic. Prerequisite, course 111 or equivalent. *Hours to be arranged.* Mr. COERNE.

PATHOLOGY

PROFESSOR BUNTING (chairman), DR. ————.

For full description of courses in Pathology, see announcement under Medical School.

For Undergraduates and Graduates

101. General and Special Pathology. *Second semester; M., W., F., S.,* 8 *to* 12. *Six to eight credits.*

103. Experimental Pathology. *Second semester; M., W.,* 1:30 *to* 4:30; *four credits.*

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* Alternate years.

For Graduates

204. Investigation under direction.
205. Journal Club. *Tu.*, 9.

PHARMACOLOGY AND TOXICOLOGY

PROFESSOR LOEVENHART (chairman); DR. PEIRCE.

For full description of courses in Pharmacology and Toxicology, see announcement under Medical School.

1, 2, 4, 5. General courses. *First semester; lectures, Tu.*, 11, *W.*, 1:30, *Th.*, 11. *Laboratory, Tu.*, 1:30 *to* 4:30 *W.*, 2:30 *to* 4:30, *Th.*, 1:30 *to* 4:30; *five credits.* Mr. LOEVENHART, Mr. PEIRCE.
8. Advanced Work. Mr. LOEVENHART.
12. Individual Work. Mr. LOEVENHART.
16. Journal Club. *Tu.*, 9.

PHARMACY

PROFESSOR KREMERS (chairman); MR. LANGENHAN, DR. WAKEMAN.

For Undergraduates

1. Pharmaceutical Technique. The principles and practice of pharmaceutical operations, a study in applied mechanics and physics. *Throughout the year; recitations and lectures; M.*, 11; *two laboratory periods; three credits.* Miss WAKEMAN.
20. Prescription Practice. An elementary course in the compounding of prescriptions. Laboratory exercises supplemented by recitations and lectures. *Class room period M.*, 1:30; *three laboratory periods; three credits.* Mr. LANGENHAN.
121. Advanced Prescription Practice. A more advanced course than the preceding one devoted to the study of classes of

modes of administration with special reference to incompatibilities. *Two class room periods, M., W., 1:30, and three laboratory periods. Second semester; four credits.* Mr. LANGENHAN.

30. Pharmaceutical Technology. An elementary course in the preparation of first materials. Two laboratory periods and one class room period, *W.*, 1:30. *First semester; two credits.* Mr. LANGENHAN.

60. Undergraduate Thesis. Mr. KREMERS.

40. Drug Store Practice. A course of lectures and topics on aspects of drug store practice, ranging from the planning and equipment of a store to salesmanship. Practical talks by druggists and others will be a special feature of the course. *F.*, 3:30. (Given 1914–15.) Mr. KREMERS and special lecturers.

50. History of Pharmacy. Lectures and topics. During the first semester the development of pharmacy in the principal countries of Europe is briefly traced; during the second semester a more detailed study of the development of pharmacy in the United States is made. (Given 1913–14.) Mr. KREMERS, Miss WAKEMAN.

For Graduates

221. Advanced Pharmaceutical Technology. A study of the position of the manufacturing laboratory in the household of pharmacy, of crude materials employed, of first materials, and of modes of administration. Lectures and conferences, also laboratory practice by special arrangement. *Hours to be specially arranged.* (Given 1914–15.) Mr. KREMERS.

PHILOSOPHY

PROFESSORS JASTROW, MCGILVARY (chairman), SHARP; ASSISTANT PROFESSORS OTTO, STARCH; DR. KALLEN, MR. ASH.

The student is at liberty to begin his work in philosophy with any of the courses designated as primarily for undergraduates. But beginners who desire to take three hours' work through one year in the department, whether they wish to continue with the subject or not, will ordinarily find it most profitable to select course 1 or 31 in the first semester, and either 11, 21, 32, or 41 in the second semester.

The requirements for an undergraduate major in philosophy are a minimum of twenty semester hours including the thesis. Of these, at least eight hours must be taken from the courses for undergraduates and graduates.

For Undergraduates

1. Psychology. Introductory Course. *First semester; three credits.* Mr. JASTROW, Mr. SHARP, Mr. STARCH, Mr. OTTO.
   Section 1. *Tu., Th.,* 9, *and F., at an hour to be arranged.* Mr. JASTROW, Mr. STARCH.
   Section 2. *M., W.,* 8, *and F., at an hour to be arranged.* Mr. SHARP, Mr. OTTO.
11. Logic. *First semester; M., W., F.,* 9 *and* 1:30; *repeated the second semester; M., W., F.,* 8 *and* 1:30. Mr. OTTO, Mr. KALLEN.
21. Introduction to Philosophy. *Second semester; M., W., F.,* 9. Mr. MCGILVARY.
23. The Philosophic Thought of the Nineteenth Century as Reflected in English Literature. Wordsworth, Byron, Shelley, Carlyle, Emerson, Tennyson, and Browning studied as psychological types, and as social and religious philosophers. No prerequisites. *Second semester; Tu., Th.* 10; *two or three credits.* (Omitted 1914–15.)
25. The Relation of Man to Nature. *Second semester; Tu., Th.,* 8. Mr. OTTO.
31. History of Ancient and Medieval Philosophy. *First semester; M., W., F.,* 11. Mr. KALLEN.

32. History of Modern Philosophy. *Second semester; M., W., F.*, 11. Mr. OTTO.

41. Ethics. Introductory Course. *Second semester; M., W., F.*, 8. Mr. SHARP.

42. Social and Political Ethics. A study of moral rights, especially of the rights of personal liberty, freedom of contract, national independence, suffrage, and equality. *First semester; two sections; Tu., Th.*, 11 *and* 1:30. Mr. SHARP.

43. Business Ethics. The foundations of the institution of private property. What constitutes a fair return from investment, and a fair wage. The ethics of competition. *Second semester; two sections; Tu., Th.*, 11 *and* 1:30. Mr. SHARP.

Courses 42 and 43 may be taken independently of each other. For neither is 41 required as a prerequisite.

44. History of Morality. An account of moral practice among some so-called primitive peoples and among some historical peoples in ancient times. *First semester; M., W., F.*, 9; *two or three credits.* Mr. MCGILVARY.

49. Moral Education, with special reference to the high school. *Second semester; Tu., Th.*, 2:30. Mr. SHARP.

51. Aesthetics. A general survey of aesthetical appreciation, with practical applications to art. An introductory course. *First semester; Tu., Th.*, 10. Mr. JASTROW.

For Undergraduates and Graduates

103. Experimental Psychology, Part I. (a) Lectures and demonstrations. *First semester; Tu., Th.*, 11; (b) Laboratory practice *at hours to be arranged.* (a) and (b) together, *three credits.* Part I deals with sensation, perception, movement, reactions, and the simpler functions of the mental life. Mr. JASTROW, Mr. STARCH.

104. Experimental Psychology, Part II. (a) Lectures and demonstrations. *Second semester; Tu., Th.*, 11; (b) Laboratory practice *at hours to be arranged.* (a) and (b) together, *three credits.* Part II deals with memory, association, attention, imagination, reasoning, the emotions, and the more complex manifestations of the mental life. Either course 103 or 104 may be taken in advance of the

other, or separately. Course 1 or its equivalent is a desirable prerequisite. Mr. JASTROW, Mr. STARCH.

104a. Experimental Psychology for Premedical Students. A survey of mental behavior and conditions, and their abnormal variation. *Second semester; M., W.*, 2:30; *laboratory period; Tu., Th.*, 1:30 *to* 4:30. Mr. JASTROW, Mr. STARCH.

105. Research in Psychology. *Throughout the year; hours to be arranged.* Mr. JASTROW, Mr. STARCH.

106. Comparative Psychology. Lectures and assigned readings on animal psychology and mental development in man. *Second semester; M., W.*, 3:30. Mr. JASTROW. (Omitted 1914–15.)

107. Abnormal Psychology. Lectures and assigned readings covering the main forms of unusual and abnormal mental phenomena. *Second semester; Tu., Th.*, 10. Mr. JASTROW.

108. Psychology of the Emotions. A general survey of the source and significance of the emotions and the bearing of conclusions on practical problems. Conducted as a seminary course. *Second semester; two credits.* (Omitted 1914–15.) Mr. JASTROW.

109. Racial Psychology. A general survey of the psychology of groups in natural and artificial circumstances. Conducted as a seminary course. *Second semester; two credits.* Mr. JASTROW.

119. Psychological Principles of Advertising. *Second semester; two sections; Tu., Th.*, 8 *and* 1:30. Mr. STARCH.

134. Contemporary Philosophy. *Throughout the year; M., W., F.*, 10. Mr. MCGILVARY. One of the following courses is prerequisite: 21, 25, 31, 32. Mr. MCGILVARY.

135. The Great Philosophic Systems of the Seventeenth Century. Descartes, Spinoza and Leibniz, in their relation to the life and literature of their times. *First semester; hours to be arranged.* Mr. KALLEN.

136. The British Philosophers of the Eighteenth Century. Locke, Berkeley, and Hume. Their philosophic and literary influence. Bearing of their teaching on contemporary problems. *First semester; hours to be arranged.* (Omitted 1914–15.) Mr. KALLEN.

137. Kant. *The Critique of Pure Reason.* Its social and philosophic background, its influence upon subsequent conceptions of the world and the individual in religion, art, politics, literature, and philosophy. *Second semester; hours to be arranged.* Mr. KALLEN. (Omitted 1914–15; given 1915–16.)

138. Typical Theories of Life. Analysis and Criticism of the more representative theories of life of ancient, medieval and modern times. Historic definitions of the ideals of Happiness, Duty, Salvation and Progress. The Life of Reason. *Throughout the year; M., W., F.,* 10; *two or three credits.* Mr. KALLEN.

139. American Philosophy. A study of the development of philosophy in the United States, with special reference to Jonathan Edwards, Ralph Waldo Emerson, and William James. (Philosophy 21, 23, or 32 presupposed.) *First semester; two credits; hours to be arranged.* Mr. OTTO.

145. The Evolution of Morality. *First semester; two credits.* (Omitted 1914–15.) Mr. SHARP.

146. Contemporary Moralists. *Second semester; two credits.* (Omitted 1914–15.) Mr. SHARP.

154. The Philosophy of Art. Historic conceptions of beauty, comedy, and tragedy. Basis and material of art. Character and value of design, architecture, music, sculpture, painting, literature, and drama. Art in its relations to society, science, religion. Place of art in civilization. *Second semester; M., W., F.,* 11. Mr. KALLEN.

155. Metaphysics. The metaphysical "problem." The psychological basis and social background of metaphysical doctrine. Historical solutions of the metaphysical problem. Contemporary metaphysics—Buddhism, neo-Aristotleanism, Idealism, Pragmatism, neo-Realism. *Second semester; three credits; hours to be arranged.* Mr. KALLEN.

For Graduates

210. Psychological Seminary. *Alternate weeks.* Mr. JASTROW.

213. Advanced Logic. *Throughout the year; two credits; hours to be arranged.* Mr. OTTO.

240. Metaphysical Seminary. *Throughout the year; Tu.*, 2:30 *to* 4:30. Mr. McGILVARY.

247. Ethical Seminary. *Throughout the year; W.*, 2:30 *to* 4:30. Mr. SHARP.

PHYSICAL EDUCATION

See Department of Physical Education, p. 528.

PHYSICS

PROFESSORS MASON, MENDENHALL, SNOW (chairman); ASSOCIATE PROFESSOR INGERSOLL; ASSISTANT PROFESSORS GAGE, ROEBUCK, TERRY; DR. FULCHER, MR. STEVE, MR. ZOBEL; MR. ANDERSON, MR. BROWN, MR. DAVIES, MR. GRAY, MR. HEISING, MR. HOOVER, MR. JACOBSON, MR. JOHNSON, MR. LUKE, MR. PIETENPOL, MR. ROADS, MR. RYSGAARD, MR. SMITH, MR. C. SNOW, MR. STOEKLE, MR. WILLIAMSON.

Following the general lectures, eight other elementary courses are given for those who desire a further knowledge of the subjects treated in course 1, or for those who are preparing to teach. Courses 110–120 are more advanced in nature, and presuppose a working knowledge of the calculus; while courses 210–220 are strictly graduate in character, and are designed primarily for those who are making a special study of the higher branches of physics.

For Undergraduates

1. General Lectures and Introductory Laboratory Practice. This course is open to election by all students, and may be taken without difficulty by those who have not had the mathematics of the freshman year. *Throughout the year; lectures M., Tu., W., Th.*, 11. Mr. SNOW. *One recitation by the class in smaller sections.* Mr. ROEBUCK, Mr. STEVE, Mr. RYSGAARD. *Laboratory practice twice a week*

at hours to be arranged. Mr. GAGE, Mr. STEVE, Mr. ANDERSON, Mr. DAVIES, Mr. GRAY, Mr. HEISING, Mr. HOOVER, Mr. JACOBSON, Mr. JOHNSON, Mr. LUKE, Mr. PIETENPOL, Mr. ROADS, Mr. SMITH, Mr. WILLIAMSON.

2. Lectures, with recitations and laboratory practice, on Mechanics, Heat, and Sound. This course, which is intermediate between the general lectures and courses 3 and 5, is open to normal school graduates and to all who have completed course 1, together with the mathematics of the freshman year. Upon arrangement with the instructor, a student with exceptional preparation may elect this course in place of course 1. *Throughout the year; at hours to be arranged; three credits.* Mr. ROEBUCK.

3. Advanced Lectures on Heat and Light. The subjects here treated are discussed more fundamentally than is possible in course 1, and lead to the still more advanced work given in course 113. *First semester; M., W., F.,* 8, *and one quiz.* Mr. MENDENHALL.

4. Advanced Laboratory Practice in Heat and Light. A laboratory course of advanced measurements in heat and light, designed to accompany course 3. *First semester; Th.,* 1:30 *to* 5:30, *S.,* 8 *to* 12; *two credits.* Mr. MENDENHALL, Mr. C. SNOW.

5. Advanced Lectures on Electricity and Magnetism. This course deals with the important principles and theories in electricity and magnetism, and is preparatory to the higher treatment of the subjects given in course 112. *Second semester; M., W., F.,* 8, *and one quiz.* Mr. TERRY.

6. Advanced Laboratory Practice in Electricity and Magnetism. A higher laboratory course, designed to accompany course 4. *Second semester; S.,* 8 *to* 12; *two credits.* Mr. STOEKLE.

7. The Teaching of Physics. A course of experimental lectures and demonstrations given by the members of the class, and designed to serve as a practice course for those who are preparing to teach. The main purpose is to train each person in the clear presentation of the topics treated, and to acquaint him with the details of manipulating demonstrational apparatus. The course is open to

all who elect physics either as a major or as a minor study. *Second semester; Tu., Th.*, 4:30. Mr. STEVE.

8. Photography. This course is designed to give instruction in a number of photographic methods, including the making of lantern slides, enlarging, microphotography, color photography, and such other processes as will enable the student to make practical use of photography in the various lines of scientific work. *Second semester; one lecture and two laboratory periods a week at hours to be arranged; two credits.* Mr. ROEBUCK.

9. Thesis. At the beginning of the first semester of his senior year, the student who chooses physics as his major study is expected to select a special line of investigation, in which, under the guidance of the instructors, he is to conduct an independent research throughout the year. *Each semester; two credits.* Mr. MENDENHALL, Mr. INGERSOLL, Mr. TERRY.

For Undergraduates and Graduates

110. Laboratory Arts. A course designed to familiarize students with the more common mechanical and other processes which are useful in advanced laboratory practice. *First semester, at hours to be arranged; one credit.* Mr. MENDENHALL, Mr. INGERSOLL, Mr. TERRY, Mr. ROEBUCK, Mr. FOERST, Mr. FULCHER.

111. High and Low Temperature Measurement. Recent developments in theory and practice are considered, and laboratory exercises with the various methods are given. *First semester; one lecture and one laboratory period a week at hours to be arranged; two credits.* Mr. INGERSOLL.

112. Introduction to the Theory of Electricity. This course furnishes a working knowledge of the more important concepts and methods used in the mathematical study of electricity and magnetism. *First semester; Tu., Th., S.*, 10. Mr. MASON.

113. Physical Optics. Special topics in physical optics, including the theory of the grating, spectroscopy, and dispersion. The first part of Schuster's *Theory of Optics* is

used as a text. *Second semester; M., W., F.*, 9. Mr. MENDENHALL.

114. Electrical and Magnetic Measurements. A laboratory course for the careful measurement of the more complex electrical and magnetic quantities, and the determination of constants. Elective for all who have completed courses 5 or 54. *Second semester; Tu., Th.*, 1:30 *to* 3:30. *Two credits.* Mr. TERRY, Mr. STOEKLE.

115. Modern Optical Instruments. An advanced laboratory course in light and radiation, designed to follow courses 3 and 4, which are prerequisites. *Second semester; one laboratory period a week, at hours to be arranged; one credit.* Mr. INGERSOLL.

116. Colloquium. This is an informal meeting of the advanced students and members of the department of physics for the critical reading and discussion of the current periodical literature. *Throughout the year; F.*, 3:30 *to* 5:30. Mr. MENDENHALL.

120. Advanced Photography. In this course special attention is paid to the color rendering of colored objects in various lines of scientific work, and to obtaining true color values in photographs designed for reproduction. *First semester; one lecture and one laboratory period a week at hours to be arranged; two credits.* Mr. BROWN.

For Graduates

210. Elements of Theoretical Physics. This course, which includes, among other topics, the kinetic theory of gases, the potential function, and the conduction of heat, is designed as a first graduate course, and is required of all candidates for the master's degree offering physics as a major. *Throughout the year; M., W., F.*, 9. Mr. INGERSOLL.

211. Advanced Dynamics. This course deals with the mechanics of rigid, fluid, and elastic bodies; wave motion, sound. A first course in mechanics is a prerequisite. *Throughout the year, M., W., F.*, 11. Mr. MASON.

212. Applications of the Electron Theory. A course dealing with the electron hypothesis and some of its conse-

quences. *First semester; two credits.* Mr. MENDENHALL.

213. Statistical Mechanics. Statistical study of the mechanical properties of systems with many degrees of freedom, with applications. *Second semester; two credits.* (Omitted 1914–15.) Mr. MASON.

214. Ionization and Luminescence. Alpha, beta, cathode, canal, anode, and similar rays are considered with reference to their power of penetrating matter and of producing ionization and luminescence. Special emphasis is laid upon the interpretation which experiments with these rays give as regards the structure and properties of atoms. *Second semester; two credits.* Mr. FULCHER.

215. Thermodynamics. The treatment in this course is substantially the same as that given in Bryan's *Thermodynamics*, with additional applications to problems of radiation. *Throughout the year, M., W., F.*, 10. (Omitted 1914–15.) Mr. MENDENHALL.

216. Theory of Electricity. A mathematical treatment of the Maxwell theory and its later developments, based on the electron hypothesis. *Throughout the year; M., W., F.*, 9. Mr. MASON.

217. The Electromagnetic Theory of Light. A mathematical treatment of electromagnetic waves and their relations to the phenomena of light. *Throughout the year; M., W., F.*, 10. Mr. MENDENHALL.

218. Electron Theory. Special topics in magnetic and electro-optics, thermal radiation, and other problems. *Throughout the year; Tu., Th.*, 11. Mr. MASON.

220. Graduate Research. This course is designed for those who have completed the equivalent of the laboratory practice represented by the undergraduate courses, and who now desire to devote some time to investigation in special lines. Mr. MASON, Mr. MENDENHALL, Mr. INGERSOLL.

Engineering Course

51. Mechanics, Sound, and Light, with Laboratory Practice. *First semester.*

52. Heat, Electricity and Magnetism, with Laboratory Practice. *Second semester.*

These courses are similar in many respects to course 1, but are more technical in nature, and are particularly designed to meet the needs of engineering students. *Lectures, M., W.,* 3:30. Mr. TERRY. *Two recitations a week by the class in smaller sections.* Mr. TERRY, Mr. INGERSOLL, Mr. FULCHER, Mr. STOEKLE. *Laboratory practice twice a week, throughout the year.* Mr. GAGE, Mr. STEVE, Mr. ANDERSON, Mr. DAVIES, Mr. GRAY, Mr. HEISING, Mr. HOOVER, Mr. JACOBSON, Mr. JOHNSON, Mr. LUKE, Mr. PIETENPOL, Mr. ROADS, Mr. SMITH, Mr. WILLIAMSON.

54. Electrical Measurements. A laboratory course in the exact determination of electrical quantities. Required of juniors in Electrical Engineering, and elective for students in other engineering courses. *First semester; two credits.* Mr. TERRY, Mr. STOEKLE.

Agricultural Course

61. Mechanics and Heat, Electricity and Magnetism, Sound and Light. A course of experimental lectures and laboratory practice, designed with special reference to the needs of students in the College of Agriculture, of whom it is required. *First semester; lectures M., Tu., W., Th.,* 11. Mr. GAGE. *One recitation by the class in smaller sections.* Mr. GAGE, Mr. STEVE. *Laboratory practice by the class in smaller sections at hours to be arranged, as in courses* 1 *and* 51.

PHYSIOLOGY AND PHYSIOLOGICAL CHEMISTRY

PROFESSOR EYSTER (chairman); ASSOCIATE PROFESSORS BRADLEY, MEEK; DR. DAWSON, DR. MORSE.

For Undergraduates

1a. Elements of Human Physiology. Lectures, quizzes, and demonstrations giving a general knowledge of the structure and functions of the human body, and specially adapted to teachers. Students electing this course should have some chemistry. *First semester; M., W., F.*, 9. Mr. MEEK.

1b. Laboratory Course in Elements of Physiology. Required of sophomores in home economics, whose work in 1a will be so reduced that their total credits in physiology will still remain 3. Open to others taking 1a, as an elective. *First semester; hours to be arranged; one credit.* Mr. MEEK, Mr. DAWSON.

The following courses are designed especially for students intending to study medicine or to teach the biological sciences, For details see announcement under Medical School.

4. Physiological Chemistry. (a) Lectures. (b) Laboratory course. (c) Conferences. *Second semester, M., W.*, 8 *to* 11; *F.*, 8 *to* 12; *four credits.* Mr. BRADLEY, Mr. MORSE.

5. Physiology. Lectures and demonstrations. *Second semester; M., W.*, 11; *two credits.* Mr. EYSTER, Mr. MEEK, Mr. DAWSON.

6. Physiology. Course 5 continued. *First semester; lectures and demonstrations, M., F.*, 9; *W.*, 11. *Conferences M., F.*, 3:30; *three credits.* Mr. EYSTER, Mr. MEEK, Mr. DAWSON.

7. Laboratory Work. Required of all students taking course 6. *First semester; M., F.*, 10 *to* 12 and 1:30 *to* 3:30; *four credits.* Mr. EYSTER, Mr. MEEK, Mr. DAWSON.

8. Advanced Laboratory Course in Physiology (including research). Mr. EYSTER.

10. Advanced Laboratory Course in Physiological Chemistry. Mr. BRADLEY.

12. Journal Club. Advanced students are expected to report from time to time upon papers of physiological and physiological-chemical interest that may appear in the current journals. *Throughout the year; one credit.*

POLITICAL ECONOMY

PROFESSORS ADAMS, COMMONS, ELY, GILMAN, ROSS, SCOTT, TAYLOR, URDAHL (chairman); ASSOCIATE PROFESSORS BUTLER, GILLIN; ASSISTANT PROFESSORS ELWELL, HESS; LECTURER L. A. ANDERSON; DR. ESTEY, MR. KIEKHOEFER, DR. KING, MR. SIMPSON, MR. TRUMBOWER; MR. CLEARY, MR. DIETZE, MR. MCKAY, MR. TRENT, MR. WHALING.

The purpose of the department is to afford means for systematic and thorough study in economics and social science. The courses are graded and arranged so as to meet the wants of students in the various stages of their progress, beginning with elementary and proceeding to the most advanced work. They are also designed to meet the needs of different classes of students; as, for instance, those who intend to enter the public service, business, the professions of law, journalism, the ministry, charity work, or teaching, and those who wish to supplement their legal, theological, or other professional studies with courses in economics or social science. Capable students are encouraged to undertake original investigation and assistance is given them in the prosecution of such work through seminaries and the personal guidance of instructors. Special funds or equivalent arrangements have been secured for the investigation of the American labor movement, taxation in Wisconsin, railway transportation and the manufacturing industries of Wisconsin. A means for the publication of the results of investigations of merit and importance is provided in the University Bulletin.

Agricultural Economics

Courses in agricultural economics given by Mr. Hibbard, Mr. Juve, Mr. Otis, Mr. Taylor, Mr. Galpin, and Mr. Elliott, are listed on p. 438.

Working Fellowships

An arrangement has been made between the University and certain departments of the State Government whereby seven positions, bearing an annual salary of $600.00 each, are avail-

able for graduate students in Economics during the academic year 1914–15.

Two of these positions, known as Working Fellowships in taxation, are provided by the Tax Commission of this state; two, known as Working Fellowships in Transportation and Public Utilities, are connected with the Railroad Commission; two, known as Working Fellowships in Insurance, are in the office of the State Insurance Commissioner, and one, known as a Working Fellowship in Industrial Investigation, is in the office of the Wisconsin Industrial Commission.

The nomination of these fellows is made by the Civil Service Commission, following the methods used in the appointment of persons to the regular university fellowships and appointment made after the candidate has satisfied the commission to which he is nominated that he is qualified for the work.

The working fellows are required to work half time on statistical and other investigations in taxation, insurance, railway, public utilities, and industrial regulation, as well as any other work assigned by the commission, or commissioner by whom they are employed, but it is expected that the services rendered to these departments will be in part, at least, of the nature of research work, furnishing a valuable supplement to academic studies in the Department of Political Economy.

The fellowships are open to university and college graduates on the same terms as the regular University fellowships, but it is desirable that candidates shall have had considerable graduate work in economics, or at least special training along the lines indicated above. The holders of these fellowships are not exempt from the regular University fees or tuition.

The same arrangement regarding the selection and appointment of the working fellows will be continued by the regents and commissions for the coming year as is in force during the present year.

For further information, application may be made to the University Registrar or to the Civil Service Commission.

Aims

The studies offered by the department are elective in all the courses of the University. The graduate work of the department may lead to the master's degree in not less than one year, and to the doctor's degree in not less than three years.

The work of this department has the following distinct but related aims:

1. To provide instruction in economics and sociology for undergraduates in all the courses of the University.
2. To provide advanced and graduate work in the studies falling within its field.
3. To assist and encourage the development of these studies.
4. With the coöperation of other departments to provide special training courses for various practical pursuits.
5. To supplement the work of the Law School.

Attention is here called to the fact that graduates who are pursuing the law course may prepare to take their master's degree at the same time with the degree in law by completing the equivalent of two full studies during one year's work. Graduates of the Law School are encouraged to devote an additional year to broadening out their training in economics, politics, and jurisprudence.

Especial attention is called to the large number of related courses in philosophy and ethics and also to the considerable number of journalistic courses.

Political Economy as an Undergraduate Major

The requirements for an undergraduate major, in addition to the thesis, are twenty-four credits as a minimum, selected in part from the advanced courses.

Political Economy as a Graduate Major

Candidates for the degree of Doctor of Philosophy in this department are required to present in their principal subject the equivalent of at least two full graduate courses during two years; in their first subordinate the equivalent of at least one such course during two years; and in their second subor-

dinate the equivalent of at least one such course during one year.

All such candidates will be expected to be familiar with the history of economic thought, the elements of statistics, and the principles of political economy as presented in advanced modern treatises.

Each candidate must have also made an intensive study of at least one of the following special fields; economic theory and institutions; sociology; labor; public finance; money and banking, and corporation and trust control; agricultural economics; transportation. In the special field or fields selected, the candidates will be expected to exhibit not only thorough knowledge of the literature, methods of study, the social bearings of the subjects included, but also ability to prosecute research.

Candidates for the master's degree must present in their principal subject the equivalent of at least two full graduate courses during one year, and in their subordinate subject the equivalent of at least one such course.

Political Economy as a Graduate Minor

For a minor, candidates whose major falls in another department may present either the general subjects required of all candidates with a major in economics, or any one of the special groups mentioned above. Candidates for the degree of Doctor of Philosophy may select their major and one of their minors in this department.

General Requirements

I. Economics 1a is a prerequisite for all other courses in Economics.

II. Courses open to students who have completed Economics 1a are 1b, 3, 5, 120, 122, 123a, 123b, 125, 130, 135, 137, and 138.

III. As a rule, no person will be admitted to other courses unless he has had 1a and the elementary course in the field in which the course in question belongs.

IV. Ordinarily no student will be admitted to courses designated, "For Graduates," unless he has had at least a year's work in economics and the elementary work in the field covered by the graduate course.

For Undergraduates

1a. The Elements of Economics. A general survey based upon *Ely's Outlines of Economics*, supplemented by lectures, assigned reading, and exercises. Required of sophomores in the Course in Commerce and of all students beginning the subject of economics. *Repeated each semester; lectures Tu., Th.,* 9 *and two quizzes; quiz section Tu., Th.,* 8, 9, 11, 1:30, 2:30 3:30. Mr. URDAHL, Mr. ESTEY, Mr. KIEKHOEFER, Mr. KING, Mr. SIMPSON, Mr. TRENT, Mr. TRUMBOWER, Mr. WHALING.

1b. Elements of Economics. A continuation course in general economics intended primarily for students who have had course 1a and wish to take up a survey of the chief economic problems of modern industrial society. *Tu., Th.,* 9 *and two quizzes, quiz sections to be arranged; four credits; second semester.* Mr. URDAHL, Mr. ESTEY, Mr. KIEKHOEFER, Mr. KING.

1. Agr. Principles of Agricultural Economics. The outlines of economics in their application to agriculture. *First semester; three credits; second semester; two credits.* Mr. TAYLOR.

2a. Social Evolution. A synoptic course, consisting of lectures copiously illustrated with lantern slides in order to give a graphic idea of the variety of social forms, and to show the actual evolution in the great departments of social life. Attendance only. *First semester; M. W., F.,* 10; *one credit.* Mr. Ross.

2b. Social Problems. Problems of the family, the race, and the social order. Divorce, child welfare, women in industry, status of women, the negro, immigration, race suicide, alcoholism, cityward trend, business morality, etc. *Second semester; M., W., F.,* 10. Mr. Ross.

3. Elements of Public Finance. An introductory study of the general principles of public expenditures, revenue, and indebtedness. *First semester; M., W., F.,* 9; *three credits.* Mr. SIMPSON.

5. The Elements of Money and Banking. An introductory course, based on Scott's *Money and Banking.* Repeated each semester. *M., W., F.,* 9. Mr. SCOTT, Mr. TRUMBOWER.

7. Industry and Commerce of the United States. A brief survey of the development of the principal industries with special reference to the methods of production and of distribution of the more important articles which enter into American Commerce. *First semester; M., W., F.*, 8. Mr. TRUMBOWER.

*8a. The Elements of Accounting. Principles of double entry bookkeeping, the use of the fundamental books, treatment and proper statement of accounts for sole proprietorship, partnership and corporation; preparation and analysis of business and financial statements; lecture and laboratory practice. *Throughout the year; M., W., or Tu., Th.*, 1:30 *to* 3:30. Mr. ELWELL and assistants.

8b. The Theory and Practice of Accounting. The theories of general and cost accounting, with problems illustrating their application. Lecture and laboratory practice. Prerequisite, course 8a. First semester's work may be taken without the second. *Throughout the year. Tu.*, 2:30, *Tu., Th.*, 10 *to* 12., Mr. ELWELL and assistants.

8c. Advanced Accounting and Auditing. This course is designed to prepare special students for employment as public accountants and auditors. Lectures, analysis of accounting systems and laboratory practice. Must be preceded by 8a and 8b. *Throughout the year; M., W.*, 1:30 *to* 3:30; *F.*, 9. Mr. GILMAN, Mr. ELWELL.

*8d. Business Organization and Management. A practical study of the typical industries and occupations and of the fundamental principles and methods of modern business procedure. Course open to seniors only. *Throughout the year; Tu., Th.*, 9. Mr. GILMAN, Mr. BUTLER.

9. Commercial Law. The law of contracts, commercial paper, agency, partnership, corporations, and property. Principles of law underlying business transactions. *Throughout the year; M., W., F.*, 11; *four credits.* Mr. GILMAN.

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*These courses will not be counted as a part of the 120 credits required for graduation in the College of Letters and Science.

For Graduates and Undergraduates

120. Industrial Evolution and Its Problems. A survey of industrial development. Economic stages; industrial revolution; competition; trust and monopoly movement; class conflict; laissez faire, regulation, government ownership, socialism. Interpretation of contemporary industrial society. *Second Semester; Tu., Th.*, 10; Mr. KIEKHOEFER.

121. History of Economic Thought. The history of economic thought in classical antiquity; its subsequent development to the time of the mercantilists; the rise and growth of economics as a distinct branch of social science. *Second semester; Tu., Th.*, 10. (Omitted 1913–14.) Mr. ELY.

122. Modern Socialism. *First semester; Tu., Th.*, 9. (Omitted 1914–15.)

123a. Labor Problems. Races, immigration, trade unions, employers' associations, etc. (Omitted 1914–15; given alternate years with 123b.) *M., W., F.*, 2:30. Mr. COMMONS.

123b. Labor Legislation. Administration. American and foreign. Factories, accidents, industrial hygiene, etc. *First semester* (1914–15), *M., W., F.*, 9. Mr. COMMONS.

124. Problems in Taxation. A continuation of course 3. Comprehends a study of specific forms of taxation; customs and excises, income, inheritance, insurance, mortgage, corporation, railway, and general property taxes; followed by a survey of tax systems. *Second semester; M., W., F.*, 9. Mr. SIMPSON.

125. International Commercial Policies. A study of the development of the theory of protection and free trade; a survey of the commercial policies of England, France, Germany, and the United States; administration of the tariff law, reciprocity, ship subsidy, commercial treaties, public trade promoting institutions. *Second semester; Th.*, 2:30. Mr. TRUMBOWER.

127. Economic History of Agriculture. A study of agriculture, past and present, explaining historical changes and geographical differences in methods of farming. In 1913–14

this course will deal with Europe, in 1914–15 with the United States. *First semester; two credits.* Mr. TAYLOR.

128. Research Work in Agricultural Economics. Opportunity is given for advanced students to do research work on selected problems in agricultural economics. *Second semester; two credits.* Mr. TAYLOR.

129. Elementary Statistics. Those phases of statistics most essential to the general student or business man. *First semester; lectures M., W.,* 1:30; *four hours of laboratory work; hours to be arranged; three credits.* Mr. KING, Mr. TRENT.

130. Economic Statistics. Course 129 or its equivalent a prerequisite. A study of the statistical side of modern economic and social problems. *Second semester; lectures M., W.,* 1:30; *four hours of laboratory work; three credits.* Mr. KING.

131. Prices and Cost of Living. A study of price movements and causes contributing thereto, and of the effects of price changes upon social conditions and upon certain economic classes of the population. *First semester; Tu,. Th.,* 2:30. Mr. HESS.

132. Teachers' Course. Students electing this course meet each week with the conference of instructors of elementary economics. They are also required to visit regularly quiz sections and to report on methods and devices used in secondary school teaching. *Second semester; W.,* 5; *two credits.* Mr. URDAHL.

133. Financial History of the United States. The main lines of our financial development, including our monetary and banking history. *First semester; M., W., F.,* 10. Mr. SCOTT.

134a. The Money Market. Lectures on the machinery, methods, and movements of the American and English money markets. *Second semester; lectures Tu., Th.,* 11. *Quiz hour to be arranged.* (Omitted 1914–15.) Mr. SCOTT.

135. Railway Transportation. A general treatment of the economic and social aspects of the railway business; the nature of private interests involved, the principles of regulation, and the mechanism of administrative and judicial control of common carriers. *First semester; M., W., F.,* 8. Mr. HESS, Mr. WHALING.

136. Railway Rates and Traffic Problems. The administrative organization of railway corporations and systems; organization and functions of regulative bodies; leading judicial decisions pertaining to common carriers. *Second semester; M., W., F.*, 8. Mr. HESS, Mr. WHALING.

137. Corporation Finance. A study of corporations, corporation securities and the methods of the stock market. *Second semester; M., W., F.*, 10. Mr. URDAHL, Mr. ESTEY.

138. Insurance Economics. Principles and methods of insurance, rise, progress, and problems for indemnity. Special attention is given to the various forms of life insurance with an elementary survey of the underlying mathematical principles. This course, if possible, should be taken before Mathematics 124. *M., W., F.*, 8; Mr. ANDERSON.

139. Social Psychology. The social mind and its reaction upon the individual mind. The laws of mob-mind, fashion, conventionality, custom, public opinion, leadership, and innovation. Interpretation of contemporary society. *First semester; M., W., F.*, 11. Mr. Ross, Mr. KIEKHOEFER.

140. General Sociology. A systematic survey of social processes with the view of establishing principles and laws. The inductive method is followed, and a large amount of classified data is presented. *Second semester; M., W., F.*, 11. Mr. Ross, Mr. KIEKHOEFER.

141. Poverty and Relief. A study of the conditions giving rise to poverty and the problems related thereto, such as housing, congestion of population, recreation, etc., and of the methods of social betterment. *Second semester;* M., *Tu., W.*, 8. (Omitted 1913–14.) Mr. GILLIN.

141a. Criminology and Penology. Extent, growth, classes and causes of crime; crime in its historical, anthropological, psychological, and sociological aspects. Theory of punishment. The treatment of crime; penitentiary, capital punishment, conditional release, probation, reformation, indeterminate sentence. The prevention of crime. *First semester; M., W., F.*, 10. Mr. GILLIN.

142a. Public Utilities. The economic significance, the legal and political aspects, and the methods of organization and

finance of public-service enterprise. Primary attention is given to municipal utilities. Special problems pertaining to water-power and irrigation are discussed. *Throughout the year; Tu., Th.*, 8. Mr. HESS, Mr. DUDGEON.

142b. Research in Public Utilities. In coöperation with the Wisconsin Railroad Commission. Provision is made for the personal study of special "utility" and transportation problems. Each student shall prepare an essay which may be journalistic in character or may meet the requirements of a senior thesis. For seniors and graduates. *Throughout the year; hours to be arranged; two credits.* Mr. HESS, Mr. HOYT.

144. Socialism. Historical causes of the socialist movement, and survey of the various schools of socialistic thought. A critical and impartial study of socialism as a philosophy and as a program of economic reform. *Summer Session*, 1914. Mr. KIEKHOEFER.

145a. Labor History prior to 1860. Comparison of American and foreign movements. *Second semester;* 1914–15. *M., W., F.*, 9. Mr. COMMONS.

145b. Labor History since 1860. *Second semester, M., W., F.*, 9. (Omitted 1914–15; given alternate years with 145a.) Mr. COMMONS.

146. Social Origins. Man's place in nature. Primitive industrial inventions: fire, tools, houses, agriculture, domestication, ornaments and clothing, language. Origin of social institutions: the primitive family, primitive art, religion, morals, justice, group-relations. Modern survivals. *First semester; Tu., Th.*, 10. Mr. GILLIN.

*238. Seminary in Insurance. The field of topics includes the conservation of human life as a part of the subject of loss prevention; workingmen's compensation; insurance; valuation of policies; methods of loading for expenses; comparative study of mortality tables; state insurance. The course is open to graduates and seniors who are writing their theses on an insurance subject. *M.*, 7:30 *to* 9:30. Mr. ANDERSON.

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*Attention is called to Mathematics 124, by Professor Dowling.

For Graduates

250. Seminary in Finance. For seniors and graduate students who desire training in the investigation of financial topics. *Weekly at hours to be arranged.* Mr. Scott.

251a. The Classical Economists. The evolution and characteristics of the classical political economy of England. Lectures and round-table discussion. *First semester; Tu., Th.*, 10. Mr. Scott. (Omitted 1914–15.) Open to graduates only.

251b. Political Economy since John Stuart Mill. The reaction against the classical political economy of England and the chief lines of development since John Stuart Mill. Given alternate years with course 251a. *First semester; Tu., Th.*, 10. Mr. Scott.

252a. The Distribution of Wealth. Part II. This course is an introduction to the economic philosophy of distribution. Special attention will be paid to Landed Property and the Rent of Land. *Second semester; M., W., F.*, 10. Mr. Ely.

252b. Property, Contract, and Socialism. A study of the theories of property, public and private, its origin, present status, and future development; followed by a discussion of contract and its relations to the fundamental economic institutions. Special attention is given to the attitude of the courts to property and contract and to the general trend of social legislation. *First semester; M., W., F.*, 10. (Omitted 1914–15.) *Second semester; Tu., Th., S.*, 10. Mr. Ely. Open to graduates only.

253a. Distribution of Wealth. Part III. The shares of the various factors in distribution, viz.: rent, interest, profits, and wages. May be taken by those who have not had Part I, course 252. *First semester; M., W., F.*, 10. (Omitted 1914–15.) Mr. Ely.

254a. Trust Movements. A series of lectures on the evolution of trusts and cartells in Germany and continental Europe, supplemented by reports and collateral reading on trusts and pools in the United States. *First semester; M., W., F.*, 10. (Omitted 1914–15.) Mr. Urdahl.

254b. Trust Control. A comparative study of methods of trust regulation employed by the federal government, the commonwealth, and by foreign states, together with a discussion of current theories. This course alternates with course 254a. *M., W., F.*, 10. Mr. URDAHL.

255. American Public Finance. Part I. A critical and historical discussion of the finances of the federal government. *Second semester; Tu., Th.*, 2:30 *to* 4. (Omitted 1913–14.)

256. American Public Finance. Part II and historical and critical account of the finances on the American commonwealths and local political units. *Second semester; Tu., Th.*, 2:30 *to* 4:00. (Omitted 1914–15.)

257. Principles of Taxation. A discussion of the history, principles, and problems of American taxation. Open only to students who have had previous training in Public Finance. *Tu., Th.*, 11. (Omitted 1914–15.) Mr. URDAHL.

258. Degeneracy and Society. Significant aspects of degeneracy; study of degenerate families; social causes; degeneracy as cause of poverty, vice, and crime. The treatment of degenerates. Legislative attempts to control degeneracy. Constructive criticism. Social prevention. *First semester; W.*, 7:15 *to* 9:15. Mr. GILLIN.

259. Methods of Social Service. A course for those who wish to prepare for social work. *Second semester; Tu.*, 3:30 *to* 5:30. (Omitted 1913–14.) Mr. GILLIN.

260. Seminary on Cities. Comparison of city with country in respect to sex, age, race, birth rate, longevity, marriage, divorce, criminality, vice, education, moral character, intellectual traits, and political tendencies. *First semester; W.*, 7:15 *to* 9:15. (Omitted 1914–15.) Mr. Ross.

261. Seminary on the Psychology of the American People. Comparison of one community or section with others in respect to pauperism, criminality, migrancy, industriousness, forcefulness, sociability, conservatism, etc. *First semester; W.*, 7:15 *to* 9:15. Mr. Ross.

262. Seminary on the Family. Study of the nature, extent and significance of the changes taking place in the American

family under the stress of modern industrial, economic, and cultural forces. *Second semester; W.*, 7:15 *to* 9:15. Mr. Ross.

263. Seminary on the Dynamics of Population. The economic, religious, military, political, legal, and social factors affecting the quantity and quality of population. Natural, social, and artificial selection. Outlines of eugenics. *Second semester; W.*, 7:15 *to* 9:15. (Omitted 1914–15.) Mr. Ross.

264. Problems in Taxation. Important problems in state and local taxation will be investigated by members of the seminar and their historical and theoretical background presented by the instructors in charge. *Hours to be arranged.* Mr. Adams.

264a. Value and Valuation. Theories of economists and American courts and commissions on the valuation of tangible and intangible property for purposes of rate regulation, taxation, special assessment, damages, public ownership, etc. *Throughout the year; Tu., Th.*, 2:30. (Omitted 1914–15; given alternate years with 264b.) Mr. Commons.

264b. Wage Theories. Historical comparison of theories of economists, socialists, anarchists, and American courts relative to wages, property in labor, rights to labor market, maximum and minimum wage laws, combinations of capital and of labor, wage exemption, labor liens, etc. *Throughout the year; Tu., Th.*, 2:30. Mr. Commons.

265. Seminary in Labor and Industry. *Throughout the year; W.*, 3:30 to 5:30. Mr. Commons.

266. General Economic Seminary. *Throughout the year; Tu.*, 7:30 *to* 9:30. Mr. Ely, Mr. Urdahl, Mr. Hess.

270. Economic Conference. The faculty and graduate students of the department meet occasionally for discussion of the economic problems of Wisconsin. *No credit.*

SPECIAL LECTURES

In addition to the regular courses of class instruction and lectures described above, special lectures are given by scholars and public men from without the University.

POLITICAL SCIENCE

Emeritus Professor Parkinson, Professor Reinsch;* Associate Professor Lloyd-Jones (chairman); Assistant Professors Hall, Hornbeck; Dr. Moore, Dr. McCarthy, Dr. Zillmer, Mr. Arneson, Mr. Dudgeon, Mr. Heeren, Mr. Macgregor, Mr. Maxey, Mr. Webster.

The work in the department of political science is designed to give a complete and scientific account of the varied activities of the state, and of the methods of determining state action through the electorate and legislative bodies. Some of the courses are planned with a view to giving that knowledge of public affairs, and of the rights and duties of citizenship, which ought to be a part of a liberal education. Others lead more specially to the study and investigation of problems and methods in the different branches of the administration, in legislatures, or in the judiciary. A number of the courses have practical ends directly in view, in that they aim to provide a training in the technique or method in certain fields of political action. It is the aim of the department to provide the broadest inductive basis, to train the powers of observation and reasoning, to develop correct and adequate methods of research, and to bring the knowledge thus gained to bear upon the solution of practical problems in the life of the commonwealth and nation. One of the main purposes of the work of the department is the training of men with a view to fitting them for the various branches of public service.

Candidates for the degree of Doctor of Philosophy, who are taking their major in this department, will be expected to be familiar with the entire field of political science, as treated in the general courses. They, moreover, ought to have an intensive knowledge of two of the following general divisions of the subject: public administration, international and constitutional law, dynamic politics, political philosophy, jurisprudence. Every candidate should be thoroughly familiar with

* On leave of absence, 1913–14.

the facts of American state and federal government, and with the organization of the principal governments of Europe. Graduates taking political science as a first minor ought to complete a minimum of six semester courses; for second minor, three semester courses.

The courses primarily for undergraduates are open for election in the sophomore and junior years. By special arrangement, freshmen of advanced standing may take courses 1 or 7. As a rule, at least five semester hours of work, primarily for undergraduates, should be done before electing any of the advanced courses. The courses for undergraduates and graduates are open for election by juniors, seniors, and graduates. Course 7 is repeated each semester and must be taken either precedent to, or along with, any of the more specialized courses in American government, politics, and law, including the following: 106, 111, 112, 114, 115, 116, 117, 122, 126, 127, 130 and 134. The requirement for an undergraduate major in political science, in addition to the thesis, is twenty-one semester hours as a minimum.

In order to enable students, whose main work is in fields not allied to political science and who may lack the time to take the longer courses, to obtain a general view of the problems of politics, certain brief lecture courses are given (see courses 4, 106, and 119) which deal with subjects of interest to students in general, and in which only a limited amount of outside reading is required.

For Undergraduates

1. General Political Science. An introductory course in comparative and historical politics. *Repeated each semester; M., W., F.*, 8. Mr. Moore.
7. Government and Politics in the United States. A general study of the American system of government, national, state, and local. Prerequisite for advanced courses in American government and law, see above. *First semester; M., W., F.*, 9 *and* 10. Mr. Hall, Mr. Zillmer. *Second semester; M., W., F.*, 9. Mr. Hall.
2. Elementary Law. The nature and sources of law and the methods of its application, including a general view of the system of private law. A general elective, recom-

mended especially to students intending to study law or any of the social sciences. *First semester; M., W., F.*, 11. Mr. HALL.

4. The Constitution of the United States. A course of lectures designed primarily for those who cannot give more time to this subject, and for students preparing to teach civics in secondary schools. *Throughout the year; Th.*, 10. Mr. HALL.

For Undergraduates and Graduates

106. Administrative Problems. A study of important administrative activities of the chief states of Europe and the United States. *Second semester; W.*, 5. (Omitted 1913–14.)

108. Introduction to the Histories of Continental European Law.

109. Roman Law. *First semester:* The historical development of the Roman law and its influence in other countries. *Second semester:* The Institutes of Roman law. The principles of the law of persons and property. *Tu., Th.*, 2:30.

110. History of English and American Law. A study of the development of legal institutions in connection with political and social history. *Second semester; M., W.*, 12. Mr. ————————.

111. Jurisprudence. Analysis of the main concepts of the science of law, on the basis of the juristic classics. Presentation of the legal system as a unit, and its place in our social order. Open to students who have had an elementary course in law. *Second semester; M., W., F.*, 11. Mr. HALL.

112. American Constitutional Law. A study of federal and state constitutional principles and limitations. *Second semester; M., W., F.*, 10. Mr. ZILLMER.

114. Municipal Functions. A comparative study of the leading activities of European and American cities. (Partly illustrated.) *Second semester; Tu., Th.*, 9. Mr. MACGREGOR.

115. Municipal Government in the United States and Europe. A comparative study of municipal organization and administration. *First semester; M., W., F.*, 9. Mr. MOORE.

116. State Administration. A study of the local and state administrative systems of the United States. *Second semester; M., W., F.*, 11. Mr. MOORE.

117. Federal Administration. A study of the organization, functions, and actual operation of the various branches of our national administration. *First semester; Tu., Th.*, 8. Mr. MOORE.

118. International Law. A general survey of the legal relations between states in time of peace and of war. *First semester; M. W., F.*, 3:30. Mr. HORNBECK.

119. Contemporary International Politics. A course of weekly lectures on questions of international or foreign politics which are of special importance at the present time. May be elected in successive years as subject-matter is changed annually. *Throughout the year; W.*, 5. Mr. HORNBECK.

120. Oriental Politics and Civilization. The relations of the European powers and the United States to China and Japan, as well as the principal factors in the social and political life of Japan, China, and India, will be studied. *Second semester; M., W., F.*, 10. Mr. HORNBECK.

121. Colonial Politics. A study of the principal systems of colonial government and administration in the dependencies. Given in 1913–14 and alternate years. *First semester; Tu., Th.*, 9. Mr. ZILLMER.

122. Party Government. A study of the development, organization, and methods of action of political parties in the United States; the legal control of parties; and reform tendencies. *First semester; Tu., Th.*, 10. Mr. LLOYD JONES.

123. Consular Service. A study of the American foreign service with special emphasis upon the consular service. *Second semester; Tu., Th.*, 8. Mr. LLOYD JONES.

124. The Self-governing Colonies. A study of the political organization and activities of Canada, Australia, South Africa, and New Zealand. *Second semester; M., W., F.*, 10. Mr. ZILLMER.

125. The Law of the Press. The law of copyright, literary property, libel, privileged publications and other topics relating to the publication of books and newspapers. *Second semester; Th.*, 2:30. Mr. ZILLMER.

126. The Theory and Practice of Legislation. A study of the methods of procedure of legislative bodies and the preparation of the subject matter and form of bills. The legislature is in session from January to June, in the odd-numbered years. *Throughout the year; Tu., Th.*, 11. Mr. LLOYD JONES, Mr. MCCARTHY.

127. European Governments. A study of the constitutional organization of the principal governments of Europe; with emphasis on political parties and current political questions. *First semester; M.. W., F.*, 8. Mr. LLOYD JONES.

128. Municipal and Legislative Reference Work. A training course in the use of scientific materials in connection with municipal administration and state legislation. *First semester in legislative years.* Mr. LLOYD JONES.

129. Teachers' Course. Methods of teaching government in secondary schools. *Second semester; Th.*, 4 *to* 6.

130. Judicial Administration. A study of the organization, jurisdiction, and actual operations of the courts with an inquiry into the defects in the administration of justice. *First semester; Tu., Th.*, 2:30. Mr. HALL.

131. Latin-American Political Institutions. A comparative study of the constitutional and administrative systems of the Latin-American Republics. *Second semester; Tu., Th.*, 2:30. Mr. MOORE.

132. Current Political Topics. Study of current political problems with training in the use of sources and in literary presentation designed for students preparing for journalism. *Throughout the year; Tu., Th.*, 10. MR. ZILLMER.

133. Practical Bill Drafting. A study of the technique of bill drafting with practice in drafting actual measures. Open to senior and graduate students. *Second semester; M., F.*, 7. Mr. LLOYD JONES.

134. Rural Government. A study of the development and present condition of county, township, and village government. *First semester; M., W., F.*, 11.

135. Conservation of Natural Resources. A study of the problems of conservation and reclamation in the United States. *Second semester; Tu., Th.*, 8.

136. American Diplomacy. A study of the principal contemporary problems of the United States in foreign affairs; the participation of the United States in the development of International Law; the organization of the diplomatic service. *Second semester; M., W., F.*, 10. Mr. LLOYD JONES.

137. Contemporary International Politics and Diplomatic Problems. A study of the present grouping of the powers and their mutual relations. *First semester; M., W., F.*, 11. Mr. HORNBECK.

138. Modern Internationalism. The causes of war and the means of preserving peace; the history and present status of world organization through international law, international arbitration, and international administration; projects of world federation; international economic and social solidarity; nationalism and cosmopolitanism. *Second semester; Tu., Th.*, 11. Mr. HORNBECK.

142. Public Utilities. A comparison of public regulation and public and private ownership of municipal utilities in American states and foreign countries, including constitutional and judicial limitations, delegation of legislative power to commissions, physical valuation, reasonable rates and service, organization of public employees, cost, efficiency, social and political results. *Throughout the year; Tu., Th.*, 8. Mr. DUDGEON, Mr. HESS.

144. The Legal and Political Status of Women. A study of the legal and political rights of women in the United States and the principal European countries with a review of the development of their status and of the movement for more complete political rights. *Second semester; Tu., Th.*, 10. Mr. MOORE.

145. History of Political Thought. The development of political philosophy from the Greeks to the present time, and its connection with political history. *Second semester; M., W., F.*, 9. Mr. HORNBECK.

For Graduates

201. Administrative Law I. Officers and Elections. A study of the legal nature of public office, its creation and extinction, and the law governing nominations and elections to office. Selected cases and Goodnow's Cases. *First semester. M., W.*, 8.

202. Administrative Law II. The Law Governing Administrative Action. A study of the legal rules governing the exercise of administrative authority and the various methods of relief against administrative action. Freund's *Cases*. *Second semester; M., W.*, 8. Mr. HALL.

203. Administrative Law III. The Law of Taxation. A study of the constitutional limitations of the taxing power, the construction, application, and administration of tax laws, and the remedies against their abuse. Goodnow's *Cases*. *First semester; M., W.*, 8. Mr. HALL.

204. Administrative Law IV. Municipal Corporations. A legal study of the nature, status, organization, powers, and liabilities of municipal corporations. Selected cases and Beale's *Cases*. *Second semester. M., W.*, 8. Mr. HALL.

218. International Law as Administered by the Courts. Case study. *Second semester; Tu., Th.*, 9. Mr. REINSCH.

252. Seminary in Comparative Legislation. This course is open to undergraduates who have had course 126. *Throughout the year; Tu.*, 4 *to* 6. Mr. LLOYD JONES, Mr. MCCARTHY.

256. Philosophy of the State. A critical study of contemporary political thought and terminology. *Second semester; Tu.*, 4 *to* 6.

257. Juristic Classics. The Institutes of Gaius, first two books; reading and commentary. *Second semester; F.*, 12.

258. Seminary in Administration. *Second semester; Th.*, 7:30 *to* 9.

259. Seminary in Municipal Problems. *Throughout the year; Tu.*, 7:30 *to* 9.

260. Seminary in International Law and Politics. 1913–14, the present status of American diplomacy and foreign affairs. *Throughout the year; Th.*, 7:30 *to* 9:30. Mr. HORNBECK.

261. Seminary in American Constitutional Law. Some important constitutional problem will be studied. *Second semester; Th.*, 4 *to* 6. Mr. HALL.

For information concerning groups of studies arranged as special training courses students are invited to consult or correspond with the chairman or the individual professors of the department of Political Science.

PUBLIC SPEAKING

ASSOCIATE PROFESSOR O'NEILL (chairman), MISS JOHNSON, MR. HOUGHTON, MR. MATTHEWS.

The courses in public speaking are designed to give preparation in two general lines of work:—(a) in argumentation and debate, and the composition and delivery of all kinds of public speeches, (b) in interpretative reading, and dramatic presentation. The courses are so arranged as to make possible systematic and progressive study in either branch during the sophomore, junior, and senior years. No courses in public speaking are open to freshmen.

Attention is called to the system of prerequisites in this department. Three courses only are open to beginners—3a, 12a, and 15.

The University of Wisconsin participates in several intercollegiate contests in oratory and debate, and further opportunity for practice outside of regular courses is to be found in local student activities in drama, oratory, and debate. Students interested in these activities should take the following courses in preparation;—for dramatic work 12, 16, 17; for oratory 15, 5a, 5b, 13; for debate 3a, 11, 15, 8.

Courses 3a, 3b, 5a, 5b, and 11 may be counted toward the English major. Not more than 16 hours of Public Speaking may be counted toward the bachelor's degree. Courses 3a, and 3b, listed also as courses in English, is a part of the work of this department.

A major can not be obtained in Public Speaking. A minor in Public Speaking is sixteen-fifths, not less than four-fifths in each of the three divisions A, B, and C.

For Undergraduates

A. COMPOSITION COURSES

3a. Argumentation. Scheduled in the announcement of the department of English as course 3 in composition. Theory and practice of argumentation, combining and applying the principles of logic and rhetoric. Analysis,

evidence, forms of argument, fallacies, refutation, brief drawing. Open to all students except freshmen. *First semester; M., W., F.*, 10, 11, and 2:30. Mr. O'Neill.

3b. Argumentative Addresses. Continuation of 3a. Practice in careful investigation, collecting and testing evidence, brief drawing, and the composition of three or more argumentative speeches of about 2,000 words each. Prerequisite, 3a. *Second semester; Tu., Th.*, 2:30. Mr. O'Neill.

5a. The Composition of Public Addresses. This is a general course in speech writing. It deals with the structure of the different forms of public addresses. Textbooks and models are studied in connection with constant practice in writing speeches suitable to various occasions. Prerequisite 3b or 11, or one year in English composition after freshman year. *First semester; Tu., Th.*, 11. *W., F.*, 10. Mr. O'Neill.

5b. Advanced Composition and the History of Oratory. The background of this course will be a survey of the history of oratory. On subjects taken from this field, the students will have practice in the preparation of formal platform lectures, eulogies, commemorative addresses, etc. Prerequisite, 5a. *Second semester; Tu., Th.*, 11. Mr. O'Neill.

B. COURSES INCLUDING DELIVERY

15. Practical Public Speaking. Training in the use of the voice, enunciation, pronunciation, gesture, and general platform deportment. The aim of this course is to teach students, by practical platform experience, how to speak effectively. Sections limited to ten, and attention given to the needs of the individual student. Open to all students except freshmen. *First semester; five sections, Tu., Th.*, 9, 10, 11, 2:30. *M., W.*, 2:30. Mr. Houghton.

8. Extempore Speaking. Review of the principles of voice control, gesture, and platform deportment. Textbook and discussion of the important problems of extemporaneous delivery; the use of the outline; practice in the preparation and delivery of all kinds of extemporaneous speeches and training in impromptu discussion. This course is designed to train students to speak upon any

occasion. Students of different departments are given an opportunity to discuss the questions in which they are most interested. Prerequisite, 15. *Second semester; five sections. Tu., Th.*, 9, 10, 11, 2:30. *M., W.*, 10. Mr. HOUGHTON.

11. Debating. Practical work in analysis, collection, and handling of evidence, brief drawing, and debating. This course will also include some work in the elements of parliamentary law. Prerequisite, 3a. *Second semester; two sections, Tu., Th.*, 9, 10. Mr. O'NEILL.

13. Oratorical Delivery. This course deals with the delivery of formal orations. Great orations will be studied with special attention to the circumstances under which they were given Each student will have training in the preparation and delivery of an original oration. Open only to those who by reason of natural ability and previous training are prepared to profit by such a course. Prerequisite, 8 or 11 or 5a. *Second semester; M., W., F.*, 11. Mr. O'NEILL, Mr. HOUGHTON. (Not given; 1913–14.)

C. INTERPRETATION

12a. Fundamentals of Vocal Expression. Theory and practice. Essentials of voice, and coördination of mind, voice, and body. Especially helpful to those intending to teach literature and reading. Open to all students except freshmen. Sections not exceeding 15. *First semester; four sections; M., W., F.*, 9, 10, 11. Miss JOHNSON, Mr. HOUGHTON.

12b. Continuation of 12a. Prerequisite, 12a. *Second semester; three sections; M., W., F.*, 9, 10. Miss JOHNSON.

16a. Interpretative Reading. Review of 12a and 12b. Pantomimic problems. Study and presentation of various forms of *standard* literature. Individual needs given special attention. Sections limited to 15. Prerequisite, 12b, or permission of instructor. *First semester; two sections, Tu., Th.*, 9, 10. Miss JOHNSON.

16b. Continuation of 16a. Prerequisite, 16a. *Second semester; two sections. Tu., Th.*, 9, 10. Miss JOHNSON.

17. Dramatic Personation. Designed for those who show marked dramatic ability, and who wish to specialize in dramatic platform work. Advanced study of pantomine and gesture. Character impersonation. Stage direction and business. Prerequisite, 16b *and* permission of instructor. *Second semester; Tu.*, 2:30 *to* 4:30. Miss JOHNSON.

For Undergraduates and Graduates

118a. Seminary. Teachers' problems. Discussion of methods, vocal problem, choice and source of material for rhetoricals, contests, and plays. Prerequisite, 11 or 13 or 16b *and* the consent of the instructor. *First semester; Tu.*, 2:30 *to* 4:30, Miss JOHNSON.

118b. Seminary. Teachers' problems. Public speaking in high schools. Organization and teaching. Relation to other subjects. Conduct of student activities. Proper aims and how to attain them. Prerequisite, 11 or 13 or 16b *and* consent of the instructor. *Second semester; W.*, 2:30 *to* 4:30. Mr. O'NEILL.

ROMANCE LANGUAGES

PROFESSORS OWEN, SMITH (chairman); ASSOCIATE PROFESSORS CERF, GIESE; ASSISTANT PROFESSORS COOL, GAY, MICHELL, REED, SCHLATTER, ZDANOWICZ; DR. CATTELL, MR. COUSINS, MR. ERNST, MR. GALLAND, MR. LEBERT, MR. MILLER, MR. BROWN, MR. GOGGIO, MR. GRIFFIN, MR. LYON; MISS LANGENDORF.

French courses numbered below 10 are for students who have had no French, or have had less than two years in the high school. Students with only one year of high school French, or its equivalent, should enter course 4.

Courses 10-17 are for students who have had one year of college French, or two years of high school French. Students who have had more than two years of high school French should, if possible, consult with the department before entering any French course.

All courses above 19 require at least French 10, or an equivalent course as prerequisite. Students entering these courses with the minimum prerequisite are advised to begin, if possible, with 21 or 23. If only two hours can be taken, the most suitable courses for such students are 120, 125, and 126. These may be taken in addition to 21 or 23 to give five credits. Other suitable supplementary courses of a special nature are 124, 127, and 133.

Students with the minimum prerequisite should consult the instructor before entering 122, 128, 131, 132, 136, 137, or 138. These are intended primarily for students who have already taken one course above French 19.

Graduates and other advanced students who take 21 or 23 are required to do additional work to receive full credit.

All courses above 139 are for graduates, but some may be taken by unusually well prepared undergraduates.

Courses marked C and E are intended for Commerce and Engineering students. Similar courses are given for students of the College of Letters and Science, who will not be allowed to take commerce and engineering courses except by special permission of the chairman of the department.

Major and Minor

Students are allowed to major in French, Spanish, or Italian, or in a combination of these. In French the student must take at least twenty-four hours in advance of first year French. Those desiring to major in Spanish or Italian or in Romance Languages should consult the department for complete details. In combining these three languages the first and second year courses of more than one of the three will not count toward the hours necessary to make up the major, nor are they counted in the maximum forty hours that can be taken in one subject. Students preparing to teach French as a major are required to take courses 135, 138, one composition, one conversation, and at least one three-credit course in French literature.

Students who are preparing to teach some other subject as a major, with French as a minor, must take at least a one-year course in French literature and one course in composition or conversation.

FRENCH

I. Language

For Undergraduates

1. Elementary French. Grammar, reading, composition, oral exercises. *Four credits; thirteen sections.* Mr. Cattell, Mr. Ernst, Mr. Galland, Mr. Goggio, Mr. Griffin, Mr. Michell, Mr. Reed, Mr. Schlatter, Mr. Zdanowicz, Mr. Brown, Mr. Cousins, Mr. Lebert, Miss Langendorf.
2. Elementary French. Special course for students who have had at least four years of Latin or German. *Tu., W., Th., F.*, 8. Miss Gay.
3. Elementary French. Same as French 1, but five times a week instead of four. Intended for students who desire a five-hour language course. *M., Tu., W., Th., F.*, 9. Mr. Cerf.
4. Advanced Elementary French. Covers the second half of French 1 and the first half of second year French. To be commenced by students who offer the equivalent of one semester of college French. *Four credits.* Mr. Galland, Mr. Schlatter.

5e. Elementary French for Engineers. For the most part the same as course 1, except that more attention will be paid to reading. *Three sections; four credits.* Mr. Cousins, Mr. Galland.

6c. Elementary French for students in Commerce. Reading, composition, oral exercises. *Tu., W., Th. F.* 9. Mr. Cattell.

7. Elementary French. Begins the second semester and covers the work done in the first semester of course 1. Students may continue their work in the summer session of the following year or in the regular session with course 4. *Second semester; four credits.* Mr. Brown, Mr. Zdanowicz.
10. Second-year French. Modern prose narrative comedies. Drill in pronunciation, written and oral work, review of grammar. Prerequisite, one year of college or two years of high school French. *Nine sections; three credits.* Mr. Brown, Mr. Cattell, Mr. Cousins, Miss Gay, Mr. Giese, Mr. Michell, Mr. Smith, Mr. Zdanowicz.

To secure four or five credits French 10 should be combined with 13, 14, 15, or 16.

11. Second-year French. Reading and grammar. *Le Roman d'un Jeune Homme Pauvre, La Petite Fadette*, two plays of Molière. *M., W., F.*, 11. Mr. OWEN.

13. Rapid Sight-reading. The work will be largely confined to the class room. Except by special permission it can be taken only in connection with some other French course. *One credit.* Section 1, *Tu., Th.*, 1:30. Mr. ZDANOWICZ.

14. French Composition. Intended to supplement the second year courses given above, and, except by special permission of the instructor, can be taken only by students of some other French course. *Tu.*, 9. Mr. MICHELL. *Th.*, 9. Mr. COUSINS.

15. French Conversation. Except by special permission, it can be taken only in connection with some other French course. *Two hours per week; five sections; one credit.* Mr. CERF, Mr. ERNST, Mr. LEBERT, Mr. ZDANOWICZ.

16. Conversation and Reading. Based on phases of modern French life and current thought. Open to students who have had work in elementary conversation. *M., W., F.*, 8; *two credits.* Mr. LEBERT.

17c. Second-year French for students in Commerce. A practical course in conversation, composition, reading. *Tu., Th., S.*, 10. Mr. CATTELL.

18. Journalistic French. Reading and study of Paris newspapers. For students in course in journalism who have had French 1 or its equivalent. *Tu., Th.*, 9; *two credits, one in French and one in Journalism.* Mr. ERNST.

29c. Third-year French for students in Commerce. Conversation, composition, reading, commercial correspondence. *Tu., Th.*, 8. Mr. CATTELL.

30c. Fourth-year French for students in Commerce. Conversation, reading, commercial correspondence. *Two credits.* Mr. CATTELL.

For Undergraduates and Graduates

120. Advanced Reading. Continuation of course 11. *Cinq-Mars, Ursule Mirouet. M., W.*, 1:30. Mr. OWEN.

124. Advanced Composition, Conversation, and Reading. Conducted in French. Based on 19th century prose authors

representative of modern French thought and style. *Tu., Th.*, 10. Miss GAY.

127. Advanced Conversation. Open to students who have had two or more years of French. Of suitable grade to follow French 15. Can be taken only in connection with some other French course except by consent of the instructor. *Tu., Th.*, 9; *one credit.* Mr. ERNST.

133. Advanced Reading. Of suitable grade to follow course 120. Hugo, *Les Travailleurs de la Mer. M., W.*, 2:30. Mr. OWEN.

135. The Teaching of French. Aims and methods, lectures, and reports. *(First semester; one credit.)* A review of work in first and second year French. Practice teaching and visiting classes. *(Second semester; one credit.)* Miss GAY.

138. French Pronunciation. The elements of phonetics in their application to the pronunciation of French. Passy-Rambeau, *Chrestomathie Phonétique. First semester. Tu.*, 8. Mr. CERF.

For Graduates

240. Old French. An introductory course. Phonology and grammar. Lectures and reading. Mr. SCHLATTER.

244. Old Provençal. Language and literature of the troubadours. Grandgent, *Old Provençal;* Appel, *Chrestomathie;* Restori, *Letteratura Provenzale.* Mr. REED.

245. Principles of Language. Explanation of linguistic thought, its special nature, and the less obvious verbal means of indicating both the elements of thought and their mode of combination. Mr. OWEN.

249. Chrestien de Troyes. Open to students who have had work in Old French. (Omitted 1914–15.) Miss GAY.

II. Literature

For Undergraduates

21. Modern French Literature. An elementary survey of the literary movements of the nineteenth century. *M., W., F.*, 9. Mr. MICHELL. *M., W., F.*, 1:30. Mr. CATTELL.

23. French Literature. The modern drama, beginning with the Romantic movement. Authors read in class are Hugo,

DeMusset, Scribe, Augier, Dumas, Rostand, Hervieu. *M., W., F.*, 10. Mr. SMITH.

Note: French 23 may be taken for credit by graduates who do an additional amount of reading.

See Comparative Literature A. Masterpieces of Romance Literature in English translation. *Tu., Th.*, 10. Mr. CERF.

For Undergraduates and Graduates

122. Romantic Poets. The work of Hugo will form the center of the course. Lectures and collateral reading. (Omitted 1914–15.) Mr. GIESE.

125. Contemporary French Literature. The first semester will be devoted mainly to the recent novel and short story; the second will study the contemporary drama. Conducted in French. (Omitted 1914–15.) Mr. ERNST.

126. French Poetry. The course includes a study of French poetry from the sixteenth century down to the present day. Lectures, expressive reading, and reports. Conducted in French. *Tu., Th.*, 2:30. Mr. ERNST.

128. French Prose Writers of the Seventeenth Century. *Second semester; M., W., F.*, 11. Mr. CERF.

131. General Survey of French Literature. An outline course treating the main currents of the literature and works of prime importance. Class reading, lectures, reports. *M., W., F.*, 8. Mr. REED.

132. French Literature. A study of literary movements in the eighteenth century. Lectures and reading from representative authors. *Second semester.* (Omitted 1914–15.) Mr. GIESE.

134. Thesis Course. George Sand, Balzac, and Daudet. Open only to seniors and graduates. May be modified to meet needs of the class. *Two credits.* Miss GAY.

136. French Literature. The French novel. Lectures on the development of the novel in Romance countries. Reading of representative French novels of the seventeenth, eighteenth, and nineteenth centuries. *Second semester.* (Omitted 1914–15.) Mr. CERF.

137. Molière. All of Molière's plays will be studied. Several representative comedies will be read in class. Lectures and assigned reading on Molière and the theater of the time. *First semester. M., W., F.*, 11. Mr. ZDANOWICZ.

139. French Drama of the Seventeenth Century. Readings from Corneille, Racine, and Molière. Lectures and reports on other authors. (Omitted 1914–15.) Mr. ZDANOWICZ.

For Graduates

242. Old French Literature. Old French epic poetry. The history of the *Chanson de Geste* will be traced and several representative poems read during the year. Theories of G. Paris, Rajna, and Bédier on the origin of the French epic. (Omitted 1914–15.) Mr. SMITH.

243. Seminary in Old French Literature. A general survey of the Brittany Cycle will be given, with the chief stress on the *Tristan*, Marie de France, and the Arthurian Romances outside of those by Chrétien de Troyes. The latter author will be considered briefly only. *M.*, 2:30 *to* 4:30. Mr. SMITH.

247. Literature of the Middle French Period. Particular attention will be devoted to Froissart, Commines, Villon, Rabelais, Montaigne. Miss GAY.

248. Medieval Literature. Its beginnings in Europe with special reference to the influence of the French and Provençal literatures. Lectures and assigned reading. (Omitted 1914–15.) Mr. REED.

252. Medieval French Drama. The liturgical drama, miracle and mystery plays. The development of the French drama from the Latin liturgical drama and its relation to the early religious plays of other countries. (Omitted 1914–15.) Mr. SMITH.

253. Seminar in French Literature. Classicism. (Omitted 1914–15.) Mr. CERF.

254. Seminar in French Literature. Romanticism. *Hours to be arranged; two credits.* Mr. CERF.

See Comparative Literature 16. Modern Classical Satire in Italian, French, and English. *Second semester.* Mr. DODGE.

See Comparative Literature 17. French and Italian Influences in English poetry in the second half of the sixteenth century. Mr. DODGE.

See Comparative Literature 218. The Renaissance in Romance Countries. *First semester: Italian; second semester: French.* (Omitted 1914–15.) Mr. CERF.

ITALIAN

I. Language

For Undergraduates and Graduates

101. Elementary Italian. Grammar, pronunciation, composition. Reading from modern writers. *M., W., F.*, 11. Mr. SCHLATTER.

II. Literature

For Undergraduates and Graduates

102. Italian Literature. Selected authors: readings and lectures. *Tu., Th.*, 11, *with a third hour to be arranged; three credits.*

105. Italian Conversation. Open to students who have had some work in Italian. *Tu., Th., S.*, 10; *one credit.* Mr. GOGGIO.

160. Dante. An introduction to the life and times of Dante, with special study of the *Divine Comedy. Three credits.* (Omitted 1914–15.) Mr. SCHLATTER.

See Comparative Literature 2. Renaissance Epic. Mr. DODGE.

SPANISH

I. Language

For Undergraduates

1. Elementary Spanish. Grammar and reading. Composition and oral exercises. *Three credits.* Mr. COOL, Mr. LYON, Mr. MILLER.

2EC. Elementary Spanish for students in Commerce and Engineering. Grammar, easy prose, composition, and oral practice. *Four credits.* Mr. COOL, Mr. LYON, Mr. MILLER.

5. Beginners' Spanish. Second semester only; may be continued in summer session or by Spanish 10. *Four credits.* Mr. Cool.

6 C. Second Year Commerce. Conversation, composition, reading. Students in the College of Letters and Science who have had one year of Spanish must take course 103 or 104 unless allowed by special permission to enter this course. *Four credits.* Mr. Cool, Mr. Miller.

7C. Third Year Commerce. Conversation, commercial correspondence, and reading. Special attention to the vocabulary of commerce. *Tu., Th.*, 8. Mr. Cool.

8C. Fourth Year Commerce. Conversation, commercial correspondence, and reading. *Two credits.* Mr. Cool.

9. Composition and Conversation. Supplementary to 103, 104, 6C, 7C, and 8C, and can be taken only in connection with some other Spanish course, except by consent of the instructor. *Tu., Th.*, 11; *one credit.* Mr. Cool.

10. Elementary Spanish for students who have had the equivalent of Spanish 5. *Four credits.* Mr. Cool.

II. Literature

For Undergraduates and Graduates

103. Nineteenth Century Spanish. The modern novel, drama, and poetry. Open to students who have had elementary Spanish. *Tu., Th., S.*, 9. Mr. Cool.

104. Spanish Literature. Cervantes *(Don Quijote)*, Calderón *(Mágico Prodigioso)*. Open to students who have had elementary Spanish. *Tu., Th.*, 8. Mr. Reed.

For Graduates

270. Early Spanish Narrative Poetry. *Poema del Cid, Fernan Gonçález, Romances.*

PORTUGUESE

271. Portuguese. Language and literature. Class reading. *(Os Lusiadas)*, with lectures on the development of the language and the history of the literature. *Second semester.* Mr. Reed.

VULGAR LATIN

272. An Introductory course treating of principal divergencies of the *Lingua Vulgaris* from classical Latin. (Omitted 1914–15.) Mr. Reed.

273. Romance Philology. A study of the differentiation of the *Lingua Vulgaris* into the dialects known as Spanish, Portuguese, French, Provençal, and Italian. (Omitted 1914–15.) Mr. Reed.

SCANDINAVIAN LANGUAGES

Professor Olson (chairman); Dr. Hollander.

This department offers instruction in all of the Scandinavian languages (Norwegian, Danish, Swedish, and Old Norse). From one year's instruction in Modern Norse the student is expected to be able to read both Norwegian and Danish authors. The principal courses are devoted mainly to Norwegian authors, but additional instruction in Danish and Swedish literature is offered to students desiring to pursue these branches beyond the limits of the prescribed courses.

(See Index under Required Studies for linguistic credit.)

For Undergraduates

1. Modern Norse. Olson's *Norwegian Grammar and Reader*, Björnson's *Synnöve Solbakken* (Flom's ed.), and selections from Rolfsen's *Boken om Norge* and Hagene's *Sange*. For beginners. *Throughout the year; three credits.*

2a. Modern Norse. Michelet's *Grammar*, Holvik's *Second Book in Norse*, and Hæreid's *Norges Historie*. For students having a speaking knowledge of the language. *Throughout the year; three credits.*

2b. Composition and Conversation. The reading of selections from *Boken om Norge*, in connection with Aars and Hofgaard's *Retskrivnings-regler*, as a basis for the work. *Throughout the year; two credits.*

3. Dramas and Novels. Ibsen's *Samfundets Stötter*, *Et Dukkehjem* and *Kongsemnerne;* Kielland's *Skipper Worse* and Lie's *Den Fremsynte.* Selections from Björnson's, Lie's, and Aanrud's stories are assigned for outside reading. *Throughout the year; two credits.*
4. Ibsen's *Brand* and *Peer Gynt*, read critically and studied from a linguistic, literary, and ethical point of view. *Throughout the year; two credits.*
5. History of Dano-Norwegian Literature. Broch and Seip's *Norsk Litteraturhistorie* and Prestgard's *Norske Kvad*, with lectures, and papers presented by students. *Throughout the year; two credits.*
6. Swedish. Vickner's *Swedish Grammar*, Selma Lagerlöf's *En herregårdssägen* and *Nils Holgerssons underbara resa* (Elmquist's editions) and *Valda Berättelser* (Mauritzon's ed.), *Throughout the year; two credits.*

6a. Swedish Literature. Tegner's *Frithiofs Saga*, Runeberg's *Fänrik Ståls Sägner*, and Warburg's *Svensk Litteraturhistoria.* Selma Lagerlöf's *Gösta Berlings Saga* or *Jerusalem* are assigned for outside reading. Designed primarily for students who have a good reading knowledge of Modern Norse. *Throughout the year; two credits.*

7. Lectures on Norse Mythology and the Volsunga Saga. These subjects are also considered with reference to their relation to the *Nibelungenlied* and especially to Wagner's *Ring des Nibelungen. First semester; Tu.*, 1:30.

7a. Lectures on early Scandinavian Literature and Antiquities, with illustrative readings in translation. Special attention is given to the Saga literature. *First semester; Tu.*, 1:30.

Courses 7 and 7a are given in alternate years; the former will be given in 1914.

7b. Lectures on modern Scandinavian authors and literary epochs, with illustrative readings in translation. A study of Ibsen's life and works is the main feature of the course. *Second semester; Tu.*, 1:30.

7c. An intensive study of Ibsen's *Brand* and *Peer Gynt* in English. *Second semester; Th.*, 1:30.

A knowledge of the Scandinavian languages is not required for courses 7, 7a, 7b, and 7c.

For Undergraduates and Graduates

108. Old Norse. Introductory course. Norreen's *Abriss der Altisländischen Grammatik* and Holthausen's *Altisländisches Lesebuch*. *Throughout the year; two credits.* Mr. HOLLANDER.

118. Old Norse. Advanced. *First semester:* The Njal's Saga; *second semester:* Selected poems of the Edda. *Throughout the year; two credits.* Mr. HOLLANDER.

102c. Modern Norse. Olson's *Grammar and Reader*, Björnson's *Synnöve Solbakken* and the shorter peasant stories, Ibsen's *Samfundets Stötter*, *Et Dukkehjem*, *Kongsemnerne*, *Brand*, and *Peer Gynt*. A rapid reading course for graduates who have a good knowledge of other modern languages. *Throughout the year; two credits.*

109. Modern Norwegian Literature. The critical reading of representative dramas and novels. The principal authors studied are Ibsen, Björnson, Lie, and Kielland. *Throughout the year; two credits.*

110. Studies in Norwegian Poetry. Selections from Wergeland, Welhaven, Munch, Moe, Björnson, and Ibsen, to illustrate the different epochs in the development of modern Norwegian literature. *First semester; one credit.*

111. Norwegian Dialect Writers. The principal authors considered are Aasen, Vinje, Garborg, and Sivle. Some attention is also given to the language reform movement. *Second semester; one credit.*

112. Scandinavian Literature. A general survey, with critical study of special periods. *Throughout the year; two credits.*

SEMITIC LANGUAGES AND HELLENISTIC GREEK

INCLUDING BIBLICAL LITERATURE

PROFESSOR WILLIAMS (chairman); ASSISTANT PROFESSORS KELLY, WOLFENSON.

(Biblical Literature: The department of Semitic Languages and Hellenistic Greek, while carefully avoiding sectarian instruction, offers courses in Biblical literature, languages, history, and geography upon the same basis as courses in other departments of language, literature, and history. Courses involving a variety of subject and treatment are open to students who have not taken the languages offered by the department. For detailed statement see the courses under the heading IN ENGLISH below.

The courses given by this department are open as electives to all students in the University, and are all counted toward graduation according to the number of credits specified in each case.

Freshmen and other students, when specially interested, are permitted to elect Elementary Hebrew in lieu of one of the two foreign languages which they may ordinarily choose, or in lieu of the one which they must take in that year. Permission to make this substitution is granted by the chairman of the executive committee of student advisers, as authorized by the Faculty of the College of Letters and Science.

Freshmen may take up Hellenistic Greek, likewise. Students are permitted (see requirements for the degree of Bachelor of Arts: 2. *Required Studies, b. Language*) to substitute 8 credits of advanced work in Hellenistic Greek (or Hebrew) for an equal number of credits in one of the languages they are ordinarily permitted to choose from. Freshmen, therefore, who are prepared to enter any of the language courses of this department except 16 and 17, 1 and 2, may substitute such courses in one language to the extent of 8 credits in part fulfillment of the language requirement of 16 to 24 credits. Those freshmen who are not prepared to take advanced work may take the elementary (first year) courses (16 and 17, 1 and 2), on condition that they continue with

advanced work in the language they elect to substitute. The first year's work is credited toward graduation, but only the advanced work is credited toward the fulfillment of the language requirement.

In addition to instruction in Semitic Languages and Hellenistic Greek, courses are offered in Arabic, Aramaic, Assyrian, and Syriac; and should occasion arise, opportunity will be given properly qualified students to prosecute studies in post-Biblical Hebrew, Talmud, Ethiopic, Semitic, Epigraphy, Old Egyptian, and Coptic.

The various courses of this department are adapted to the needs of:

1. The general student desiring to secure a true and broad knowledge of language, literature, and history as a means to liberal culture or with a view to teaching, since this work furnishes unsurpassed linguistic training in this most important non-Indo-European family of languages and gives a view of a little known, but very important, domain of intellectual development.

2. The student intending to study theology, or those already in the ministry who desire to broaden their knowledge in this field, since the language, literature, history, and archaeology of the Semitic peoples are of the highest importance for theology.

Students of comparative religion and of comparative literature, since the Semitic languages, together with Egyptian furnish the earliest records of religion and literature, and the respective peoples have originated and transmitted many forms of literature.

4. The student of ancient history desiring to work with the original sources, the earliest monuments and records of which are Semitic and Egyptian.

5. The student of linguistics, as furnishing a view of a most important family of languages, a knowledge of which is essential to a thorough understanding of language processes, and as illustrating peculiarities of phonetics.

6. The student of Semitic languages, literature, and history for their own sake.

Major in Semitic Languages and Hellenistic Greek

The requirements for a major in this department will be a minimum of 20 credits, including thesis, made up from any of the courses offered, excepting 1 and 2, 16 and 17, but the amount of work required will be subject to increase and variation depending upon the progress and needs of the individual student.

For Undergraduates

IN ENGLISH

(A knowledge of the original languages not required.)

20B. The Appreciation of Biblical Literature. Masterpieces of Hebrew Literature. *Throughout the year; one credit.* Mr. WILLIAMS.

23. Hebrew History. Lecture course on Semitic origins, migrations, and settlements; conditions in early Palestine; the Abrahamitic migration, and patriarchal history; Egypt and the Exodus; the conquest of Palestine to Saul; and the Kingdom to Solomon. *First semester; two credits.* Mr. WOLFENSON.

24. History of the Kingdom. Lecture course on the division of the Kingdom; the Assyrian period; fall of Samaria; the Southern Kingdom to the Exile; the literature of the period. *Second semester; two credits.* Mr. WOLFENSON.

25. Jewish History. Lecture course on the period of the Exile; the Return and the Persian period; Alexander's conquest; the Greek and Syrian period; the Maccabean wars; the Roman period. *Second semester; one credit.* Mr. WILLIAMS.

5A. Messages of Hebrew Prophecy. A course of interpretative lectures on the Minor Prophets, treating the literature in its historical and sociological aspects. Supplemental to course 105. *Throughout the year; two credits.*

20A. Matthew, Mark, Luke, John. The Background of the Gospels. The ethnological, political, sociological, and religio-ethical background of the four gospels. *Throughout the year: one credit.* Mr. WILLIAMS.

20C. The Appreciation of Biblical Literature. The literary data of the Gospels. A non-theological study of the literary

material of Matthew, Mark, Luke, and John. *Throughout the year; one credit.* Mr. WILLIAMS.

19A. The Apostolic Age. Lecture course treating critically the records, history, and developments of the period of the Apostles, with assigned readings and reports by the class. Designed to supplement course 19 and to be taken in conjunction with it, but each may be taken independently. *Throughout the year; one credit.* Mr. BOSTRÖM.

26. Historical Geography of Palestine. Lecture course on Hebrew archaeology and recent discoveries, illustrated by lantern slides. *Throughout the year; one credit.* Mr. KELLY.

LINGUISTICS. LITERARY INTERPRETATION

1. Elementary Hebrew. Phonology, inflections, and syntax. The acquirement of a correct and fluent pronunciation of pointed Hebrew is insisted upon, and practice in reading unpointed texts is given. *Throughout the year; four credits.* Mr. WOLFENSON.

2. This course covers the same ground as course 1, but beginning in the second semester of each year, twice a week, continues thus during the first semester of the following year. Mr. WILLIAMS.

16. The elements of Hellenistic Greek. For those who have not studied classical Greek. Forms and idioms of Hellenistic Greek composition; reading of selected chapters of the Gospels with attention to acquirement of vocabulary. *Throughout the year; four credits.* Mr. WILLIAMS.

17. This course covers the same ground as 16, but begins in the second semester of each year, twice a week, and continues the same for the first semester of the following year. Mr. WILLIAMS.

3. Second Year Hebrew. A reading course in Hebrew historical literature, centering on the Books of Samuel, with sight reading in other books; also a review of the Hebrew verb with special attention to the weak verbs. *First semester; two credits.* Mr. KELLY.

4. Advanced Second Year Hebrew. Reading in the Book of Deuteronomy and legal literature with attention to sight reading and securing a wide vocabulary; also a review of inflections with special study of roots and triconsonantism. *Second semester; two credits.* Mr. KELLY.

Courses 3 and 4 with work assigned by the instructor may be given graduate credit.

7. Prose Composition and Conversation. The more important principles of Hebrew syntax are thoroughly illustrated. Intended to be taken in conjunction with courses 3 and 4, but may be taken independently. *Throughout the year; one credit.* Mr. KELLY.

18A. Matthew. Literary interpretation with a careful study of the etymology of the language. *Throughout the year; two credits.* Mr. WILLIAMS.

18B. Mark. Literary interpretation; a review of the forms; the the general principles of the syntax. *Throughout the year; two credits.* Mr. WILLIAMS.

For Undergraduates and Graduates

105. The Minor Prophets. An advanced course; critical study of the text on the basis of the ancient versions, recent theories of the composition and form of certain books, and the historical background of the books studied. *Throughout the year; two credits.* Mr. KELLY.

106. The Book of Job. A critical study of the text with a consideration of Hebrew wisdom—literature, philosophy, and the problem of suffering. *Throughout the year; two credits.* Mr. KELLY.

108. Hebrew Syntax. Systematic study of the details of Hebrew syntax and the thought processes of the Hebrews as revealed in the syntax, with reading of illustrative passages and composition. *Throughout the year; two credits.* Mr. WOLFENSON.

115. Semitic Epigraphy. A study of the North Semitic Inscriptions. *Throughout the year; two credits.* Mr. KELLY.

115A. Talmud. Elements of the Aramaic of the Babylonian Talmud. Study of the tract Berachoth as a basis for linguistic work. Historical and literary introduction to the Talmud in supplemental lectures and reading. *Two times per week.* Mr. WOLFENSON.

119A. Luke. Introduction to Criticism. The Synoptic Problem. Peculiarities of Hellenistic Greek syntax. *Throughout the year; two credits.* Mr. WILLIAMS.

119B. Acts. Introduction of date, authorship, composition, and purpose of the book. *Throughout the year; two credits.* Mr. WILLIAMS.

120. The Book of John. Introduction to textual criticism. A consideration of the differences between John and the other Gospels; the date, authorship, composition, and purpose of the book. The leading *termini technici* of John. *Throughout the year; two credits.* Mr. WILLIAMS.

122. Advanced Hellenistic Greek Grammar. Study of special passages for syntactical determination. Usually alternates with 122A. *Throughout the year; two times per week.* Mr. WILLIAMS.

122A. Advanced Hellenistic Greek Grammar. Investigation of special problems in syntax. Usually alternates with course 122. *Throughout the year; two times per week.* Mr. WILLIAMS.

127. The Psalms—Books I and II. Form and characteristic of Hebrew poetry with an introduction to the theories of Hebrew metre: Cobb, *Criticism of Hebrew Metre. Throughout the year; two credits.* Mr. KELLY.

For Graduates

209. Advanced Hebrew Syntax. Study of special problems in Hebrew syntax with reports by members of the class. Historical syntax. *First semester; two credits.* Mr. WOLFENSON.

210. Advanced Hebrew Etymology. Origin and development of the Hebrew inflections; historical and comparative study of the verbal system. Arabic, at least, of the other Semitic languages, is essential for this course; it can, therefore, be taken only by those who have had or are taking course 212. *Second semester; two credits.* Mr. WOLFENSON.

211. Hebrew Seminary. Hebrew legal, historical, poetical, and prophetical literature will be the subject in successive years, with a representative book of each type as a nucleus of the work. During the year 1911–12 Isaiah XL-

LXVI, was the center of the work on prophecy. The work of the seminary is supplemented by the reading courses whose subject is parallel with that of the seminary. A knowledge of Hellenistic Greek, Latin, German, and French is necessary for effective work, but a knowledge of all the languages specified is not indispensable. Credit for the work of the seminary will vary in individual cases according to the amount of work accomplished. *Throughout the year; once a week (two-hour session).* Mr. KELLY.

212. Elementary Arabic. The sounds, inflections, and broad outlines of syntax. Exercises and reading of easy prose. Acquirement of vocabulary. Use of Arabic for lexicographical purposes. Comparison with Hebrew. *Throughout the year; two credits.* Mr. WOLFENSON.

212A. Elementary Arabic. For those desiring an opportunity to begin Arabic in the second semester. The right of withholding this course in any given year is reserved. *Second semester; three credits.* Mr. WOLFENSON.

213. Advanced Arabic. Reading course in the Qur'ân and the Arabic historians; lectures and readings on the early history of Islam. History of the Qur'ân. *Throughout the year; two credits.* Mr. WOLFENSON.

214. Elementary Assyrian. The sounds; correspondence of Hebrew and Arabic with Assyrian; inflections; study of signs. Selected texts: Friedrich Delitzsch, *Assyrische Lesestücke*, 4th ed.; Bruno Meissner, *Assyrisch-Babylonische Chrestomathie.* Introduction to Sumerian. Assyrian discoveries. *Throughout the year; two credits.* Mr. KELLY.

215. Biblical Aramaic (ten weeks); Syriac (remainder of the year). The dialects of Syriac; use of Syriac for comparative purposes. Reading of selections in Brockelmann's Syriac Grammar and Roediger's Syriac Chrestomathy. *Throughout the year; two credits.* Mr. WOLFENSON.

221. Hellenistic Greek Seminary. In successive years the Epistle of Paul to the Romans, the Second Gospel, and the Fourth Gospel will form the center of the work. *Throughout the year; once a week (two-hour session).* Mr. WILLIAMS.

ZOOLOGY

PROFESSOR GUYER (chairman); ASSOCIATE PROFESSORS MARSHALL, PEARSE; ASSISTANT PROFESSOR WAGNER; MR. JUDAY, MR. MAYOR, MR. FASTEN, MISS SMITH, MR. GLASCOCK, MR. PARMENTER, MR. MUTTKOWSKI, MR. NELSON, MISS KJELLGREN, MR. CAHN.

Students who make zoology their major study are expected to obtain a minimum of thirty credits (including thesis) selected as follows:

a. Zoology 1a and 1b, or Biology 1; Zoology 102a, 104a, and 109b. One elementary course in botany is required of those who have not taken Biology 1.

b. Additional courses in Zoology, or in special cases by permission of the chairman of the department, courses in allied departments.

For the advanced courses training in chemistry and ability to read French and German is very desirable.

Medical students will find courses 5, 6, 19 and 104a of special interest. Arrangement may be made with the chairman of the department to take certain combinations of these courses with 1a or 1b, instead of the usual combination (1a and 1b), in satisfying the premedical requirement in biology.

Agricultural students will find courses 6, 19, 109 to 113, and 121 of special interest.

For Undergraduates

1a. General Zoology. The general characteristics and relationships of the main groups of animals together with life-histories of representative forms. Courses 1a and 1b combined may be substituted for Biology 1 in satisfying the natural science requirement. *First semester. Lectures, M., W., F.,* 9. *Lab. sect. I, M., W.,* 1:30 *to* 4:30. *Sect. II, Tu., Th.,* 1:30 *to* 4:30. *Sect. III, Tu., Th.,* 9 *to* 12. *Five credits.* Mr. PEARSE and assistants.

1b. Animal Biology. The second semester of Biology 1 and of Zoology 1a. Lectures and discussions dealing in an elementary way with the general problems of animal struc-

tures, activities and adaptations, sex, development, heredity, and evolution. *Lectures M., W.*, 2:30. *Four two-hour laboratory periods per week; five credits.* Mr. GUYER, Mr. MAVOR, Mr. JUDAY and assistants.

3. Elementary Zoology. For agricultural students only. *Second semester; three credits.* Mr. GUYER and assistants.

4. Elementary Zoology. For students of home economics. *First semester; W.*, 10; *Tu., Th.*, 1:30 *to* 3:30; *three credits.* Mr. GUYER and assistants.

5. Elements of Vertebrate Embryology. Lectures on general problems. Laboratory work on the development of the frog. *First semester; S.*, 8 *to* 12; *two credits.* Mr. MAVOR.

6. Heredity and Eugenics. The main facts and theories of heredity and its mechanism, with emphasis on the phases pertaining to human welfare. *First semester; Tu., Th.*, 3:30; *two credits.* Mr. GUYER.

19. Animal Parasites. Designed to meet the needs of medical and agricultural students and those interested in the problems of public health. *Second semester; Tu., Th.*, 8 *to* 11; *three credits. Veterinary students may take the laboratory work alone for two credits.* Mr. PEARSE.

For Undergraduates and Graduates

102a. Invertebrate Zoology. A discussion of the structure, development, classification, instincts and life-histories of invertebrate animals. *First semester; lectures M., W.*, 10; *six hours laboratory M., W., F.*, 1:30 *to* 4:30; *five credits.* Mr. PEARSE.

104a. Comparative Anatomy of Vertebrates. Dissection and study of selected types of vertebrates together with lectures and discussions on general vertebrate anatomy with special reference to the evolution of the various organ systems. *First semester; five credits. Tu., Th.*, 9; *Tu., Th., S., Mornings.* Mr. MAVOR.

104b. Vertebrate Zoology. A study of the structure, physiology, habits, classification, and distribution of vertebrates. Supplements course 104a. *Second semester; lecture, laboratory, and field work; hours to be arranged; three cred its.* (Omitted 1913–14.) Mr. WAGNER.

107. Evolution Problems. A critical discussion of the theory of organic evolution and the general development of evolutionary speculation since Darwin. *Second semester; Tu., Th.*, 3:30; *two credits.* Mr. GUYER.

125. Embryology of the Chick. Attention will be given to the technique of fixing, sectioning, and staining embryological material. *Second semester; Tu.*, 8 *to* 12; *two credits.* Mr. MAVOR.

108. Histogenesis. A study of the development and structure of animal tissues and cells. Attention will be given to the technique of making histological preparations. Recommended to follow or accompany course 5 or 125 and to precede courses 114–116. *First semester; three credits; lecture W.*, 1:30. Mr. MAVOR.

109a. Entomology. Morphology, anatomy, and embryology of insects. Lectures and laboratory. *First semester; three credits; hours to be arranged.* Mr. MARSHALL.

109b. Entomology. Classification and life histories of insects and the more general problems of insect life. Lectures, laboratory, and field work. *Second semester; three credits. Lecture, W.*, 10. Mr. MARSHALL.

112. Entomology. Life-history and structure of economic insects, giving the life-history, structure and classification of those insects which are of economic importance. *First semester; two credits.* Mr. MARSHALL.

113. Forest Entomology. The principal insects injurious to forest and shade trees. *Second semester; two lectures a week; time to be arranged.* Mr. MARSHALL.

123. Entomology. Advanced work for students who desire to continue some special line of work. *Throughout the year.* Mr. MARSHALL.

114. Anatomy and Physiology of the Cell; Non-Developmental Phenomena. Particular attention is given to the physics and chemistry of the cell, the colloidal nature of protoplasm, the effects of electrolytes on living substance, and the phenomena of metabolism, stimulation and transformation of energy. *First semester; Tu., Th.*, 11; *two credits.* Mr. GUYER.

115. Anatomy and Physiology of the Cell; the Germ-Cell. A study of the cell with special reference to the problems of development and inheritance. *Second semester; Tu., Th.*, 11; *two credits.* Mr. GUYER.

116. Cytology, Laboratory. A course intended to serve as an introduction to cytological technique and to the general field of cellular biology. *Tu., Th.*, 1:30 *to* 4:30; *three credits.* Mr. GUYER.

117. Animal Ecology and Natural History. Factors determining habitats, succession, faunas, relations to plants, relations between different species and between individuals of the same species, etc.; will be considered. *Second semester; M., W., F.*, 1:30; *two credits.* Mr. PEARSE.

118. Field Zoology. *Second semester; Saturday; credit by arrangement.* Mr. PEARSE.

120. The Teaching of Zoology. A practical course. Discussion of laboratories and equipment, books, teaching, technique, and specific hints on other points. Laboratory work dealing with reagents; the preparation of slides, charts and museum specimens; class preparations; collecting; making cultures, aquaria, etc.; teaching; photography; and cataloguing. *Second semester; F.*, 10, *and three hours of laboratory work; two credits.* Mr. PEARSE.

121. Ornithology. A study of the main facts relating to birds. *Second semester; one lecture and one laboratory or field period a week; hours to be arranged; two credits; Tu.*, 4:30. (Omitted 1913–14.) Mr. WAGNER.

122. Animal Behavior. A discussion of general facts and principles. Laboratory work on special problems. *Second semester; F.*, 11; *six hours of laboratory work; three credits.* (Omitted 1913–14.) Mr. PEARSE.

124a. Limnology. A course of lectures on the geology, physics, chemistry, and biology of lakes. The various methods used in making limnological investigations will be presented. Especial attention will be given to the results that have been obtained in studies on Wisconsin lakes. *First semester; two lectures per week at hours to be arranged; two credits.* Mr. JUDAY.

124b. A Continuation of Course 124a. A study of plankton organisms, especially their identification, variation, distribution, and economic importance. The field work will consist of practice in making physical, chemical, and biological observations on lakes. *Second semester; lectures, laboratory and field work; two credits.* Mr. JUDAY.

(For elementary and advanced courses in paleontology see under Geology.)

For Graduates

220. Seminary. Current problems in Zoology. *F.*, 3:30 *to* 5:30. Mr. GUYER.

228. Research. Work under different members of the staff. Problems will be assigned, and students prepared for independent investigation will be given all the opportunities available for carrying on their work.

THE COURSE IN CHEMISTRY

LOUIS KAHLENBERG, Director, Professor of Chemistry.

THE PURPOSE OF THE COURSE

The primary purpose of this course is to offer facilities for the training of those who desire to become chemists. The demand for competent chemists has very greatly increased in recent years. Not only has there been a greater call for able teachers of chemistry for high schools, colleges, and universities, but an unusual demand has arisen for chemists of ability for agricultural experiment stations, hygienic laboratories, health and sanitary departments of municipalities, food testing laboratories, and industries engaged in the preparation of foods and other articles of consumption, textile and other fabrics, metallurgical products, and building materials. The cause for this demand is readily discerned. The growing realization that the best way to combat disease is to live under hygienic conditions and use wholesome food, proper clothing, and shelter has made physio-

logical chemists, food chemists, and sanitary chemists indispensable. The fact that careful study of the soil in its relation to the crops it is to produce has greatly increased both the quantity and quality of the yield of the land, and that a proper study of the breeding and feeding of animals raised on the farm has added very materially to the wealth and well-being of the nation, has made the soil and agricultural chemists necessary. And again, since the exploitation of the more readily accessible resources of our country, such as its wealth in timber and minerals, for example, is fairly well accomplished, attention is naturally being directed more and more toward manufacturing articles from materials whose value is not obvious at sight, materials that have indeed often been discarded as worthless. It is in this work that the services of the analytical and industrial chemist are an absolute necessity. Naturally these demands for chemists have also resulted in an increased call for teachers of chemistry. Nor is the need of chemists of temporary character, for obviously activity in the various lines mentioned will grow of necessity and increase the demand for men and women skilled in chemistry. Indeed, in many of our industries it is already realized that it is necessary to have the service of a chemist continually in order to properly inspect the raw materials bought, to control and improve the process of manufacture so as to avoid waste of power and material, and to test the grade of the finished article.

It is not the purpose of this course to prepare chemists for each individual industry; for that would be well-nigh impossible, since it requires special practical experience to become proficient in any particular line of work. The aim is rather to give the student a training in the fundamental principles of chemistry and the cognate sciences, which, of course, also necessitates a proper grounding in mathematics, French, and German. With this preparation a chemist will readily be able to adapt himself to any special industry with which he may later on be connected.

Special attention is called to the fact that chemistry offers opportunities for women as well as for men. Not only in teaching chemistry in high schools and colleges, but also in lines like analytical, physiological, sanitary, and food chemistry, there is a growing field of work for women.

Since the course in chemistry has been established there has been a steady increase in the number of students who are devoting themselves to the study of chemistry. Nevertheless the University has thus far been utterly unable to supply a sufficient number of chemists to colleges, universities, experiment stations, and various industrial firms that have applied for persons of thorough chemical training.

REQUIREMENTS FOR ADMISSION

Students will be admitted to this course on compliance with the conditions imposed for entrance to the College of Letters and Science. See Index under Admission.

Persons twenty-one years of age, who are not candidates for a degree, and who wish to take special studies, are permitted to enter as adult special students upon giving satisfactory evidence that they are prepared to profit by the course desired.

Students who have satisfied all the requirements for entrance, but do not wish to be candidates for a degree, will be admitted to any of the studies of this course for which they are properly prepared.

PLAN OF THE COURSE OF STUDY

Six courses of study have been outlined, namely a general course, a course for industrial chemist, a course for agricultural chemist, a course for soil chemist, a course for physiological chemist, and a course for food chemist. The latter course is also well adapted for those fitting themselves for sanitary work in hygienic laboratories. The general course is intended for those desiring to become analytical chemists, and those that prefer a course relatively free from biological studies and work which is strictly applied in character. The first two courses are almost free from biological work, containing only a short course in bacteriology, which it is extremely desirable that every chemist should have. The other four courses are primarily distinguished from the first two in that they contain a considerable amount of biology and consequently present less opportunity for further work in other lines.

The work for the first year is the same for all of the courses; it is, therefore, detailed in connection with the general course

only. It will be observed that differentiation in the various lines begins in the second year of the general course, the main difference being, as already stated, that biology is introduced in the last four courses.

In all the courses, general inorganic, analytical, organic and physical chemistry are required. Physics, mathematics consisting of trigonometry and analytical geometry, and a short course in mechanical drawing are also required of all. The English is the regular course required of all freshmen in the College of Letters and Science. Both German and French are required; these languages must be pursued in not less than one-year courses. A student coming prepared in but one of these languages would naturally continue work in that language during the freshman year. The equivalent of at least course 2S in German and course 1 in French is required for graduation. The special courses required in connection with each of the six courses are selected because they are calculated to fit the student for the definite end in view. Each course contains a certain number of hours for free electives, and while freedom of election is not restricted, the student is strongly urged to choose his electives from subjects outside of the natural sciences.

In each of the courses, 140 unit-hours are required for graduation. As the work outlined is necessarily difficult in character, students would often find it advantageous to absolve a part of the required studies during one or more summer sessions.

COURSE OF STUDY

General Course

First year: *First semester.* General Chemistry, 5; Mathematics, 3; German or French, 4; English, 3. *Second semester.* Mechanical Drawing, 3.

Second year: *First semester.* Quantitative Analysis, 6; German or French, 4; Physics, 5; Calculus or Mineralogy, 3. *Second semester.* Calculus or Bacteriology, 3.

Third year: Organic Chemistry. 5; Physical Chemistry, 5; German or French, 4; Electives, 4.

Those that took Calculus in the second year must take Mineralogy 3 in the first semester and Bacteriology 3 in the second se-

mester, which leaves for them but one hour as elective for each semester.

Fourth year: *First semester.* Chemistry Thesis, 2; Water and Gas Analysis, 2; Proximate Organic Analysis, 3; History of Chemistry, 2; Electives, 3. *Second semester.* Chemistry Thesis, 2; Chemistry (elective), 5; Fire Assay, 2; Electives, 9.

Course for Industrial Chemist

The first and second years are the same as in the general course.

Third year: Organic Chemistry, 5; Physical Chemistry, 5; German or French, 4; *First semester*, Technical Fuel and Gas Analysis, 2; Electives, 2. *Second semester*, Chemical Machinery, 2.

Fourth year: *First semester.* Chemistry Thesis, 2; Water Analysis, 1; Proximate Organic Analysis, 3; Industrial Chemistry, 2; History of Chemistry, 2; Chemical Manufactures, 4; Electives, 4. *Second semester.* Chemistry Thesis, 2; Chemical Machinery, 2; Fire Assay, 2; Bacteriology, 3; Electives, 4.

Course for Agricultural Chemist

Second year: Quantitative Analysis, 4; German or French, 4; Biology, 5; Physics, 5.

Third year: *First semester.* German or French, 4; Organic Chemistry, 5; Bacteriology, 3; Electives, 6. *Second semester.* German or French, 4; Organic Chemistry, 5; Agricultural Chemistry, 5; Agricultural Bacteriology, 3 or 5, or Electives, 4.

Fourth year: *First semester.* Physical Chemistry, 5; Agricultural Chemistry, 5; Agricultural Chemistry Thesis, 2; Electives, 6. *Second semester.* Physical Chemistry, 5; Soils, 5; Agricultural Chemistry Thesis, 2; Dairy Chemistry, 3; Electives, 3.

Course for Soil Chemist

Second year: *First semester.* Quantitative Analysis, 6; German or French, 4; Physics, 5; Bacteriology, 3. *Second semester.* Quantitative Analysis, 5; Soils, 5; Physics, 5; Agricultural Bacteriology, 3.

Third year: *First semester.* German or French, 4; Organic Chemistry, 5; Soil Chemistry, 4; Systematic Botany, 2; Electives,

3. *Second semester.* German or French, 4; Organic Chemistry, 5; Soil Chemistry, 4; Mineralogy, 3; Electives, 2.

Fourth year: *First semester.* Soils Thesis, 2; Physical Chemistry, 5; History of Chemistry, 2; Geology, 5; Electives, 4. *Second semester.* Soils Thesis, 2; Physical Chemistry, 5; Soils Physics, 2; Agricultural Chemistry, 5; Electives, 4.

Course for Physiological Chemist

Second year: Same as for agricultural chemist.

Third year: *First semester.* German or French, 4; Organic Chemistry, 6; Physiology, 3; Physical Chemistry, 5. *Second semester.* German or French, 4; Organic Chemistry, 5; Physiological Chemistry, 4; Physical Chemistry, 5.

Fourth year: *First semester.* Bacteriology, 5; Advanced Physiological Chemistry, 4; Toxicology, 3; Physiological Chemistry Thesis, 2; Electives, 4. *Second semester.* Bacteriology, 5; Seminary Physiological Chemistry, 1; Histology of Foods, 2; Chemistry of Foods, 5; Physiological Chemistry Thesis, 2; Electives, 3.

Course for Sanitary Chemist or Food Chemist

Second year: Same as for agricultural chemist, except that in the second semester Biology 5 is replaced by Bacteriology 3, and Biology of Water Supplies, 3.

Third year: *First semester.* German or French, 4; Organic Chemistry, 6; Vegetable Histology, 3; Physical Chemistry, 5. *Second semester.* German or French, 4; Organic Chemistry, 6; Microscopic Examination of Foods and Drugs, 3; Food Chemistry, 5.

Fourth year: *First semester.* Thesis in Food or Sanitary Chemistry, 2; Water and Gas Analysis, 2; Proximate Organic Analysis, 3; Toxicology, 3; History of Chemistry, 2; Electives, 6. *Second semester.* Thesis in Food or Sanitary Chemistry, 2; Physical Chemistry, 5; Physiological Chemistry, 4; Electives, 7.

DEPARTMENTS OF INSTRUCTION

For detailed information regarding any of the following courses see Chemistry, College of Letters and Science; also College of Agriculture and College of Engineering.

Chemistry

1. General Chemistry, including Qualitative Analysis.
4. Thesis.
107. History of Chemistry.
11. Quantitative Analysis.
15. Quantitative Analysis, for students in agricultural, sanitary, food, and physiological chemistry.
113. Water Analysis.
114. Gas Analysis.
119. Proximate Organic Analysis.
120. Organic Chemistry.
130. Physical Chemistry.
146. Chemistry of Foods, and their Adulterations.

Agricultural Chemistry

1. Agricultural Chemistry.
2. Agricultural Analysis.
4. Dairy Chemistry.
5. Animal Chemistry.
19. Thesis in Agricultural Chemistry.

Physiological Chemistry

4. Physiological Chemistry.
10. Advanced Physiological Chemistry.
11. Toxicology.
12. Seminary in Physiological Chemistry.

Assaying

120. Assaying.

Chemical Technology

11. Chemical Machinery and Appliances.
12. Technical Fuel, Gas, and Oil Analysis.
14. Chemical Manufacture.
15. Industrial Chemistry.

Bacteriology

For detailed information see Bacteriology, College of Letters and Science.

1. General Bacteriology.
2. Medical Bacteriology.

104. Advanced Work in Bacteriology.

1A. Agricultural Bacteriology.

Botany

For detailed information see Botany, College of Letters and Science.

5. Vegetable Histology.

20. Systematic Botany.

111. Microscopic Examination of Foods and Drugs.

Biology

For detailed information see Biology, College of Letters and Science.

1. General Biology.

English

For detailed information see English, College of Letters and Science.

1. Freshman English.

French

For detailed information see French, College of Letters and Science.

1. Elementary French.
4. Elementary French. For students that have had the equivalent of one year of French in high schools.

10. Second Year French.

Geology

For detailed information see Geology, College of Letters and Science.

1. General Geology.

German

For detailed information see German, College of Letters and Science.

1. Beginners' German.
2S. Second Year German.
3S. Scientific German.

Mathematics

For detailed information see Mathematics, College of Letters and Science.

2. Trigonometry.
3. Analytical Geometry.
5. Calculus.

Mechanical Drawing

For detailed information see Mechanical Drawing, College of Engineering.

1. Elements of Drawing.

Physics

For detailed information see Physics, College of Letters and Science.

1. General Lectures and Introductory Laboratory Practice.

Physiology

For detailed information see Physiology, College of Letters and Science.

1. Physiology.

Soils

For detailed information see Soils, College of Agriculture.

1. Introductory Lecture and Laboratory Course.
19. Thesis.
121. Soil Chemistry.
122. Soil Physics.

Toxicology

For detailed information see Toxicology, Medical School.

1. Toxicology, lectures.
2. Toxicology, laboratory work.

Information concerning additional courses in any of the departments of instruction may be found by referring to the index.

LABORATORIES

A description of the various scientific laboratories of the University may be found by referring to the index.

LIBRARIES

For detailed information concerning general library facilities see Libraries. The various scientific departments have excellent reference libraries in connection with the laboratories. These departmental libraries contain those books and periodicals which are most frequently used. In chemistry and allied sciences the University offers most excellent library facilities.

REQUIREMENT FOR GRADUATION

Students who have successfully completed any of the above courses of study will be admitted to graduation from the University and will receive the degree of Bachelor of Science.

CHARGES AND FEES

For the fees to be paid in this course and in the various scientific laboratories see Index under Fees.

THE COURSE IN COMMERCE

W. A. Scott, Director, Professor of Political Economy.

REQUIREMENTS FOR ADMISSION

Students will be admitted to this course on compliance with the conditions imposed for entrance to the College of Letters and Science. (See Index under Entrance Requirements.)

PLAN OF THE COURSE OF STUDY

The studies of the course may be classified under the following heads:

I. *Foundational Studies.*

To this group belong the studies which are regarded as essential in a liberal education and as a necessary foundation for

more specialized subjects to be pursued later on. They comprise courses in natural science, mathematics, English, foreign languages, history, and economics. In natural science, physical geography and the physiography of the United States are required as a basis for economic geography, upon which in turn are built several specialized courses in applied economics. In addition students elect a year's laboratory course in either physics or chemistry. The course in English is the general training course required of all freshmen in the University. Two foreign languages are required, the choices given being French, German, and Spanish. In these courses special attention is devoted to the acquisition of a speaking and writing command of the language for commercial purposes. Economics and history reveal the forces which produce changes in commercial conditions and institutions and the laws of such changes. The courses prescribed along these lines are the economic and social history of England, the elements of political economy, money and banking, and transportation.

II. *Professional Studies.*

The aim of these is to teach students to understand and actually to perform the various processes common to all branches of commerce. They comprise business correspondence, business forms, and documents, accounting, auditing, salesmanship, advertising, credits and collections, and the management of factories and other business concerns. In these courses the study of general principles is always accompanied by practice work in a well equipped laboratory.

This class of studies is distributed throughout the course, beginning with the sophomore year. They are so correlated with the other lines of work as to receive re-enforcement from them and to furnish constant tests of their efficiency.

III. *Elective Studies.*

Besides the two classes of studies described above which are with few exceptions prescribed, each student is obliged to elect a group of related courses and a sufficient number of other courses to complete the minimum prescribed for a bachelor's degree. These groups must be arranged at the beginning of the junior year and are designed to give the student an opportunity to study intensively a particular field and to learn how to collect

and utilize data bearing upon the problems of commerce and industry. His attainments in this direction are tested by a thesis prepared during the senior year. Among the fields available for group work and thesis writing are banking, transportation, accountancy, organization, insurance, corporation finance, foreign commerce, commercial law, and agricultural problems.

Approximately one-half of the student's time in the junior and senior years is available for free election from the great variety of courses offered in the various colleges and departments of the University. The opportunity here presented may be utilized to broaden the student's outlook into fields of knowledge not covered by the requirements of his course or to supplement the studies already pursued.

ARRANGEMENT OF STUDIES

FRESHMAN YEAR

Physical Geography, 3 (first semester); Economic Geography, 3 (second semester); German, French, or Spanish, 4; English, 3; Mathematics, 3; History, 3; Physical Education, 2; Drill, 2.

SOPHOMORE YEAR

Economic Geography, 3 (first semester); Foreign language (continued) 2, or second language, 4; Chemistry or Physics, 5; Elementary Economics, 4 (first semester); Money and Banking, 3 (second semester); Elements of Accounting, 2; Free Electives, 2 or 0; Physical Education, 2; Drill, 2.

JUNIOR YEAR

Foreign language (continued, 2, or second language (if not taken in sophomore year); Transportation, 3 (first semester); Theory and Practice of Accounting, 2; Elective Group, 3 to 5; Free Electives, 8 to 10.

SENIOR YEAR

Foreign language (continued), 2; Commercial Law, 4; Advanced Accounting and Auditing, 2; or Business Organization and Management, 2; Elective Group and Thesis, 4 or 6; Free Electives, 4 or 6.

DEPARTMENTS OF INSTRUCTION

Algebra

1. Algebra. For detailed information see Mathematics, College of Letters and Science. *First semester; three times a week.*
7. Commercial Algebra. Theory of probabilities, series, and the application of mathematics to insurance and finance.
124. The Mathematics of Life Insurance. *Throughout the year; Tu., Th.*, 10.

Business Administration*

a. The Elements of Accounting. Section 1, *M., W.*, 1:30 *to* 3:30; Section 2, *Tu., Th.*, 1:30 to 3:30; Section 3, *M., W.*, 9 *to* 11.
b. The Theory and Practice of Accounting. Prerequisite, course a. First semester's work may be taken without the second. Section 1, *Tu., Th.*, 10 *to* 12.
c. Advanced Accounting and Auditing. Prerequisite, courses a and b. *M., W.*, 1:30 *to* 3:30; *F.*, 9.
d. Business Organization and Management. *Tu., Th.*, 9.

Chemistry

For detailed information see Chemistry, College of Letters and Science.

1. General Chemistry. A general introductory course.

English

For detailed information see English, College of Letters and Science.

1. Freshman English. English prose style. Composition.
4. Commercial Correspondence. Prerequisite, course 1. *Second semester, Tu., Th.*, 10.
4a. Advanced Commercial Correspondence. Prerequisite, good work in course 4. *First semester; Tu., Th.*, 10.

French

For detailed information see Romance Languages, College of Letters and Science.

6C. Elementary Course.

17C. Conversation, Composition, and Reading, *Tu., Th.*, 11.

29C. Conversation, Commercial Correspondence, and Reading. Twice a week.

30C. Conversation, Commercial Correspondence, and Reading. *Twice a week.*

Geology

For detailed information see Geology, College of Letters and Science.

4a. Physical Geography. *First semester.*

4b. Economic Geography. *Second semester.*

German

For detailed information see German, College of Letters and Science.

2C. Modern Prose.

3C. Reading, Conversation, and Composition.

4C. A continuation of the work of the preceding year.

5C. The work of this course will be of a strictly practical character, being devoted chiefly to oral and written work on topics connected with the actual demands of a commercial career. *Tu., Th.*, 11.

History

For detailed information see History, College of Letters and Science.

4. History of the United States.

5. English History.

115. Diplomatic History of the United States.

Physics

For detailed information see Physics, College of Letters and Science.

1. General Lectures and Introductory Laboratory Practice.

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* Courses in this field are officially classified with those in political economy and designated as Political Economy 8a, 8b, 8c, and 8d.

Political Economy

For detailed information see Political Economy, College of Letters and Science.

1a. The Elements of Economics. *Repeated each semester; lectures, Tu., Th.,* 9.
1b. Advanced Economics. *Second semester.*
3. The Elements of Public Finance. *First semester.*
5. The Elements of Money and Banking.
7a. Economic Geography. *Second semester.*
7b. Economic Geography of the United States. *First semester.*
8. See Business Administration.
18. Senior Seminaries. For thesis students.
127. Historical and Comparative Agriculture. *First semester.*
130. Elements of Statistics.
131. Prices and the Cost of Living. *First semester.*
133. Financial History of the United States. *First semester.*
134a. The Money Market. *First semester.*
135. Transportation Communication. *First semester.*
136. Railway Rates and Traffic Problems. *Second semester.*
137. Corporation Finance. *Second semester.*
138. Insurance Economics. *Second semester.*
142a. Public Utilities.
142b. Research in Public Utilities.

Political Science

For detailed information see Political Science, College of Letters and science.

117. Federal Administration. *Second semester.*
118. International Law. *Throughout the year.*
119. Contemporary International Politics.
121. Colonial Politics. *First semester.*
123. The Consular Service. *First semester.*
131. Latin-American Political Institution. *First semester.*

Spanish

For detailed information see Romance languages, College of Letters and science.

2EC. Elementary.
6C. Conversation, Composition, and Reading.
7C. Conversation, Commercial Correspondence, and Reading.
8C. Conversation, Commercial Correspondence, and Reading.
9. Composition and Conversation.

GRADUATE STUDENTS

Graduates of this or other colleges and universities of good standing will be admitted to this course, and arrangements will be made so that they may take its peculiar studies in two years, or in less time, provided they have already pursued some of them in their undergraduate courses.

PREPARATION OF TEACHERS

Students who wish to prepare themselves to teach commercial subjects in secondary schools will be aided in so arranging their elective work as to attain this end. Special facilities for pedagogical practice will be given such students in connection with the course in Business Administration, and work in addition to that prescribed may be arranged in subjects of especial importance to teachers.

SPECIAL LECTURES

Special lectures are provided from time to time for the purpose of acquainting students with present business conditions and opportunities. So far as possible, men representing the chief business enterprises of the United States are secured for this purpose.

REQUIREMENTS FOR GRADUATION

Students who have successfully completed the above course of study will be admitted to graduation and will receive the degree of Bachelor of Arts.

THE COURSE IN JOURNALISM

WILLARD G. BLEYER, Chairman, Associate Professor of Journalism.

PURPOSE AND PLAN OF THE COURSE

The courses preparatory to journalism have been selected and arranged with the purpose of indicating to students interested in journalistic work the studies best adapted to give the broad training necessary for the successful pursuit of this profession. The increasing demand for editors of newspapers and periodicals for college graduates indicates a recognition of the value of a college course as preparation for journalism. It is believed that the value of such a course may be greatly increased by having it include those subjects a knowledge of which is essential for journalism of the best type.

The courses included in the list are of three kinds: (1), those designed to familiarize the student with present social, political, and economic conditions in the light of their origin and development, as well as with the literature of his own and other languages; (2), those designed to develop the student's power of expressing his ideas effectively in writing; (3), those intended to give the necessary technical instruction in the methods of modern journalism. The course of study has been arranged in the belief that the greater part of the time should be devoted to a study of the subjects of the first group, such as history, political science, economics, sociology, philosophy, psychology, language, and literature, which are fundamental to journalistic work. Instruction in the principles of effective written expression and practice in writing are given by the courses in composition.

The technical work includes courses in newspaper writing of the several kinds and in newspaper editing, with a consideration of the methods of practical journalism, the history of the American press, and a study of the organization and the management of a modern newspaper. Courses are offered in the psychological principles of advertising and in the principles and the methods of newspaper advertising. Representative German and French newspapers are read and studied in special courses for

journalism students, given by the German and Romance Language departments.

Instruction is also given in the law of the press, including the law of copyright, literary property, libel, privileged publications, and other topics relating to the publication of books and newspapers. In connection with the courses in newspaper work special lectures in various phases of journalistic work are given by newspaper men in active service.

Additional information is given in the bulletin, "Course in Journalism, 1914-15," which may be had on application to the chairman.

TECHNICAL AND TRADE JOURNALISM

Although the course in journalism has been arranged primarily for those preparing for newspaper and magazine work, provision has also been made for those interested in technical and class journalism. The courses in newspaper and magazine work may be elected by students in the professional schools and courses. Provision is also made by which students in the College of Letters and Science may elect courses in the College of Mechanics and Engineering, the Law School, and the College of Agriculture, as well as in the Course in Pharmacy and the Course in Commerce in the College of Letters and Science. In the same manner students in the Colleges of Mechanics and Engineering, Agriculture, and the Law School, may elect courses in the College of Letters and Science, such as those in newspaper writing and editing. The Course in Commerce in the College of Letters and Science includes a number of special groups of studies designed to furnish opportunity for a more thorough study of the various principles of commerce and industry, such as banking and finance, transportation, manufacturing industries, and agricultural industries. By combining studies in commerce, agriculture, engineering and other technical subjects with those outlined in preparation for journalism, students can obtain the necessary preparation for practically all lines of technical and trade journalism.

Courses in agricultural journalism are given in the College of Agriculture for those who desire special training of that kind.

LABORATORY EQUIPMENT

A laboratory is maintained for the use of the students in the course in journalism. The equipment includes standard typewriters on which students may prepare their work. Several thousand clippings of typical news reports from representative papers are mounted and filed as models. Magazine and special feature articles taken from various periodicals are filed to furnish examples of magazine work. Files of representative daily and weekly papers are provided for reference use by the students. Methods of preserving biographical, descriptive, and statistical information as well as illustrations, are shown in the laboratory. Reference books, with descriptive matter and illustrations of typesetting and typecasting machines, printing presses, and stereotyping machinery also form a part of the equipment. A large collection of typical foreign newspapers serves as a basis for the study of comparative journalism.

STUDENT PUBLICATIONS

The students of the University edit and manage a number of publications all of which offer excellent opportunities for practical experience in various kinds of journalistic work. Places on the editorial and the business staffs of these publications are awarded for the most part on a basis of literary and executive ability, and are open to practically all students of the University, The Daily Cardinal, published as a morning newspaper, is edited by a staff organized from the students interested in journalism, who thus get systematic practice in all the details of newspaper making. The Sphinx, an illustrated humorous monthly; the Wisconsin Magazine, a monthly devoted to short stories, verse, and essays; and the Badger, the University annual edited and published by the members of the junior class, all give opportunity for a variety of experience in journalism. The Wisconsin Engineer, a quarterly edited and published by the students of the College of Engineering, and the Wisconsin Country Magazine, a monthly edited and managed by the agricultural students, furnish practice for those interested in technical and trade journalism.

SCHOLARSHIPS AND PRIZES

University graduate scholarships are open to students of journalism. Several undergraduate prizes in journalism offered by *The Daily Cardinal* are awarded each semester to editors and reporters for excellent work.

GENERAL REQUIREMENTS

Students will be admitted to these courses on compliance with the conditions imposed for entrance to the College of Letters and Science. (See Index under Requirements for Entrance).

Persons over twenty-one years of age, who are not candidates for a degree, and who wish to take special studies, are permitted to enter as adult special students upon giving satisfactory evidence that they are prepared to profit by the courses desired.

Students who have satisfied all the requirements for entrance but do not wish to be candidates for a degree, will be admitted to any of the courses for which they are properly prepared.

For the requirements of a degree of Bachelor of Arts, see Index.

ARRANGEMENT OF COURSES

In accordance with the elective system of the University, students preparing for journalism are not restricted to a fixed course of study, but are permitted to elect any studies which they are qualified to pursue. The following list contains the courses in journalism, and those courses in history, economics, political science, philosophy, and English, which bear most directly upon journalistic work. The courses in each subject have been arranged under the fours years in the order in which they normally follow each other. Courses marked with an asterisk are required of all students; the number in parentheses indicate the number of the course in the department; Arabic figures following the parentheses indicate the number of hours a week; and the Roman figures, the semester in which the course is given.

FRESHMAN YEAR

Elements of Newspaper Writing (Journalism 1), 1; *Freshman English (1), 3; *Foreign Languages, 4; English History (5), 3; Medieval History (1), 3; *Mathematics, 3, or *Science, 5.

SOPHOMORE YEAR

Newspaper Reporting and Correspondence (Journalism 2), 3; Journalistic German (11), 1; Sophomore Composition (2, 5), or Advanced Composition (6), 3; General Survey of English Literature (30), 3; History of the United States (4), 3; Elements of Economics (1), 3, I, II; Elements of Money and Banking (5), 3; General Political Science (1), 3, I; *Foreign Language, 4.

JUNIOR YEAR

Newspaper Editing (Journalism 3), 2; Journalistic French (13), 2; Psychological Principles of Advertising (119), 2, II; American Literature (40), 2; Argumentation (Public Speaking 3), 3, I; Modern European History (2), 3; The British Empire Since 1688 (143), 2; Elementary Law (2), 3, I; Government and Politics in the United States (7), 2, II; International Law (18), 2; Party Government (122), 3, I; Charities and Corrections (141), 3, II; Labor Problems (123), 2, II; Social Psychology (139), 3, I; Elements of Public Finance (3), 3, I; Problems of Taxation (124), 2, II; History of New England (113), 3, II; Psychology (1), 3, I; Ethics (41), 3, II; History of Modern Philosophy (32), 3, II; Logic (11), 2, II; *Foreign Language, 2.

SENIOR YEAR

Editorial Writing, and Magazine Writing (Journalism 104, 105), 2; Newspaper Advertising (Journalism 130), 2, I; The Law of the Press (Pol. Sc. 125), 1, II; History of the West (111), 3; Nineteenth Century Europe (139), 3, II; Diplomatic History of the United States (115), 2; History of Europe and Asia (148), 2; Social and Economic Statistics (130), 3; Transportation and Communication (135), 3, II; Financial History of the United States (133), 3, I; The Money Market (134a), 3, I; Industrial Evolution and Its Problems (120), 2, I;

Administrative Problems (106), 2, I; The Law of the Press (125), 1, II; Theory and Practice of Legislation (126), 3; Oriental Politics and Civilization (120), 3, II; Municipal Government in Europe and the United States (115), 3, II; Contemporary International Politics (119), 1; Social and Political Ethics (142), 2, I; Philosophic Thought in Nineteenth Century English Literature (123), 2, II; Abnormal Psychology (107), 2, II; Modern Drama (107), 2; Victorian Prose Writers (54), 2; The Victorian Era (35), 3; Current Political Topics (132), 2; *Foreign Language, 2.

DEPARTMENTS OF INSTRUCTION

Journalism

For detailed information regarding courses in Journalism, see Journalism, College of Letters and Science.

1. Elements of Newspaper Writing.
2. Newspaper Reporting and Correspondence.
3. Newspaper Editing.
11. Journalistic German.
13. Journalistic French.
104. Editorial Writing.
105. Special Feature and Magazine Writing.
130. Newspaper Advertising.
110. Seminary in Journalism.

See also Current Political Topics (course 132 in political science), The Law of the Press (course 125 in political science), Psychological Principles of Advertising (course 119 in philosophy), and courses in agricultural journalism.

Agricultural Journalism

For detailed information see Agricultural Journalism, College of Agriculture.

1. Agricultural Journalism.

English

For detailed information see English, College of Letters and Science.

1. Freshman English.
2. Sophomore Composition.
3. Argumentation.

4–4A. Commercial Correspondence.
5. Advanced Sophomore Composition.
6. Advanced Composition.
7. Narration.
8. Dramatic Composition.
30. General Survey of English Literature.
35. The Victorian Era.
39. The Novel.
40. American Literature.
54. Victorian Prose Writers.
107. Modern Drama. (cf. Comparative Literature.)

History

For detailed information see History, College of Letters and Science.

1. Medieval History.
2. Modern European History.
4. History of the United States.
5. English History.
111. History of the West.
113. History of New England.
115. Diplomatic History of the United States.
124. Recent History of the United States, 1873–1906.
139. The Nineteenth Century, 1815-1900.
143. The British Empire since 1815.
148. Europe and Asia.

Philosophy

For detailed information see Philosophy, College of Letters and Science.

1. Psychology. Introductory Course.
11. Logic.
23. The Philosophic Thought of the Nineteenth Century as Reflected in English Literature.
32. History of Modern Philosophy.
41. Ethics.
42. Social and Political Ethics.
43. Business Ethics.
107. Abnormal Psychology.
119. Psychology of Advertising.

Political Economy

For detailed information see Political Economy, College of Letters and Science.

1. The Elements of Economics.
2. Elementary Sociology.
3. Elements of Public Finance.
5. The Elements of Money and Banking.
8. Business Administration.
120. Industrial Evolution and Its Problems.
123. Labor Problems.
123a. Labor Legislation.
124. Problems in Taxation.
130. Statistics.
134a. The Money Market.
135. Transportation and Communication.
139. Social Psychology.
141. Charities and Corrections.
142. Public Utilities.
145. American Labor History.

Political Science

For detailed information see Political Science, College of Letters and Science.

1. General Political Science.
2. Elementary Law.
7. Government and Politics in the United States.
106. Administrative Problems.
115. Municipal Government in Europe and the United States
118. International Law.
119. Contemporary International Politics.
120. Oriental Politics and Civilization.
122. Party Government.
125. The Law of the Press.
126. The Theory and Practice of Legislation.
132. Current Political Topics.

THE COURSE IN PHARMACY

EDWARD KREMERS, Director, Professor of Pharmaceutical Chemistry.

THE OBJECT OF THE COURSE

The prime object of the Course in Pharmacy is to furnish a thoroughly scientific foundation for the pursuit of the profession of pharmacy. The elements of the fundamental natural sciences, chemistry, botany, and physics must first be studied before their application to pharmacy can rationally be considered. This is as true for pharmacy as for any other applied science or art. In pursuing these general studies the pharmacy students have the advantage of close association with students from other courses. This implies that in these studies they must be able to keep abreast with students who are graduates of accredited high schools. The best preparation for college, therefore, which the prospective pharmacy student should seek is not that of the shops, but that of a good high school or academy of like rank. The University does not demand practical experience for admission to the courses in pharmacy, but desires such preparation as will best fit for college or university work.

The general study of these fundamental sciences is followed by more or less specialized courses. General chemistry, inorganic and organic, qualitative and quantitative analysis are followed by pharmaceutical chemistry, and applied chemical analysis; general botany by vegetable histology and anatomy of drugs; general physics by pharmaceutical technique. These somewhat specialized studies, in turn, not only lay the foundation for the study of the more strictly applied courses in practical pharmacy and pharmacognosy, but also prepare the student for thesis work.

The student who can spend only two years at the University is compelled to take up the more technical studies of his course before he has laid a satisfactory foundation. Such a compromise is outlined under the caption, Courses of Study. The three-year student, as a rule, finds time to pursue other studies besides those outlined above, *e. g.*, German, physiology, or bacteriology, etc. The four-year student has the great advantage

of supplementing his high school preparation during the freshman and sophomore years by acquiring a reading knowledge of German and French, and by the study of university mathematics, all of which studies are of the greatest importance when the more advanced work of the natural sciences is taken up during the junior and senior years.

Special attention is called to the four-year course offered to graduates of accredited high schools. This course was created in order to accommodate those students who desire to obtain a general scientific education and to include in their course the pharmaceutical studies, and with the hope of stimulating a broader pharmaceutical education. For the more applied courses special laboratories have been equipped.

Like the sister profession, medicine, pharmacy is in need, not only of the general practitioner, but also of the specialist. To meet the demands of such, the University offers graduate courses. Graduates who desire to prepare themselves as chemists for manufacturing establishments, as analytical, food or sanitary chemists, or as bacteriologists, will find that the graduate work in the Course in Pharmacy, as well as the other departments of the University, offers excellent opportunties for advanced and more specialized study. Special lines of research can also be pursued in various departments by those who desire to work for a higher degree. The attention of advanced students is especially called to the graduate work. (See Index.)

Laboratories

A description of the various general laboratories of the University may be found by reference to the Index.

The Pharmaceutical Laboratories.—These laboratories are located on the third and fourth floors of the new wing of the Chemistry Building. They consist of a dispensary, a laboratory for analytical purposes, and a laboratory for general pharmaceutical chemistry on the third floor. On the fourth floor there are a milling room and laboratories for extraction and distilling purposes equipped with steam and vacuum apparatus. The work of these laboratories is carefully coördinated and culminates in the prescription work of the dispensary.

Collections

The collections of the University, including the drug cabinet, are described elsewhere. See Index under Collections.

Libraries

For a statement as to general library facilities at the University and in the city of Madison, see Index under Library. The department library for ready reference is now housed in the library of the new Chemistry Building, a large, well lighted and equipped room on the third floor, unusually well supplied with reference works and the best periodicals. The other department libraries, as well as the general library, are all on the same campus and, therefore, easy of access.

Adam Conrath Memorial Fund

In 1912 the Wisconsin graduates of the Philadelphia College of Pharmacy gave $75 to the University to establish the Adam Conrath Memorial Fund. This sum is to be added to from time to time until the amount reaches $250. The income is then to be used to maintain a set of the *American Journal of Pharmacy* in the University.

Terms of Admission

The requirements for admission to the several colleges of the University are described on previous pages. See Index under Admission.

The special requirements for admission to the two-year pharmacy course are herewith repeated.

I. Graduates from high schools are admitted without examination and without practical experience in a drug store.

II. Non-graduates are admitted if they comply with the following requirements:—

1. They must be at least eighteen years of age.

2. They must present satisfactory certificates of *at least* one year's attendance from some standard high school, or its equivalent from a similar educational institution.

3. The time intervening between the secondary education and the college course should have been spent in a drug store where physicians' prescriptions are regularly compounded.

Degrees

The first degrees given in pharmacy are those of *Graduate in Pharmacy*, upon completion of the two-year course, and of *Bachelor of Science, Pharmacy Course*, conferred upon candidates who have successfully met the requirements of the four-year course.

The degree of *Master of Pharmacy* is conferred as a second degree upon graduates in pharmacy.

The degrees of *Master of Science* and *Doctor of Philosophy*, are conferred as higher degrees upon candidates who have a baccalaureate degree.

Fees and Expenses

The tuition and laboratory fees and an estimate of expenses for board and lodging are given on previous pages. (See Index.)

COURSES OF STUDY

Two-Year Course

FIRST YEAR. FIRST SEMESTER

Chemistry 1.* General Chemistry. A general introductory course. In the first semester the work consists of the chemistry of the non-metals. *Five credits.* Mr. KAHLENBERG, Mr. WALTON, Mr. KLEIN, Mr. KRAUSKOPF.

Botany 1. General Botany.† Introductory to both botany and zoology, and required as preliminary to all work in either department. *Lectures, M., W.*, 2:30; *eight hours of laboratory work and one recitation a week; five credits.* Mr. OVERTON and others.

Botany 135. Sources and Collection of Crude Drugs. Laboratory and field work supplemented by lectures and recitations. *One credit.* Mr. DENNISTON.

Pharmacy 1. Pharmaceutical Technique. *M.*, 11; *three credits.* Miss WAKEMAN.

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* The figures refer to the number of the courses as given in statements under departments of instruction.

† Students who have had a year high school course in botany, including laboratory work, may substitute an elective for this semester's work.

Pharmacy 20. Prescription Practice. *M.*, 1:30 *and three laboratory periods; three credits.* Mr. LANGENHAN.

Pharmacy 50. History of Pharmacy. *F.*, 3:30; *one credit.* Mr. KREMERS, Miss WAKEMAN.

FIRST YEAR. SECOND SEMESTER

Chemistry 1. General Chemistry continued. During the second semester the work consists of the chemistry of the metals and qualitative analysis. *Five credits.* Mr. KAHLENBERG, Mr. WALTON, Mr. KLEIN, Mr. KRAUSKOPF.

Chemistry 11. Quantitative Analysis. Introductory laboratory course accompanied by weekly lectures. *Three credits.* Mr. LENHER, Mr. BARNEBEY.

Chemistry 117. Inorganic Preparation. Laboratory course in the preparation of typical inorganic compounds. *Three credits.* Mr. LENHER, Mr. BARNEBEY.

Botany 130. Identification and Classification of Seed Plants. A study of the floral structure of types of seed plants, with especial attention to those of economic importance. Practice in the determination of species by the use of a systematic key. Lectures, laboratory, and field work. *M., Tu., Th., F.*, 8 *to* 10, *and Saturday excursions; four credits.* Mr. DENNISTON, Mr. STEWART.

Pharmacy 1. Pharmaceutical Technique. Continuation of first semester.

Pharmacy 50. History of Pharmacy. Continuation of first semester.

SECOND YEAR. FIRST SEMESTER

120. Organic Chemistry. *Lectures Tu., Th.*, 8. *Laboratory work.* Mr. FISCHER, Mr. JONES, Mr. NEBEL.

Chemistry. 26. Pharmaceutical Chemistry. (Inorganic.) *Lectures and recitations, M., W., F.*, 10; *two laboratory periods; four credits.* Mr. KREMERS, Miss WAKEMAN.

Chemistry 40. Plant chemistry. As a three credit study supplementary to pharmacognosy. *Recitations, W.*, 11; *two laboratory periods.* Mr. MILLER.

Botany 110. Plant Histology. A systematic study of the tissues of the seed plants and ferns. *M., W., F.*, 8 *to* 10; *three credits.* Mr. DENNISTON, Mr. ELWERS.

Botany 132. Pharmacognosy. A study of materia medica, including the origin, history, properties, and uses of drugs. *Two credits.* Mr. DENNISTON.

Pharmacy 30. Pharmaceutical Technology. The study and manufacture of galenical and other preparations; waters, tinctures, fluid extracts, spirits, oleo-resins, etc.; also pills, suppositories, ointments, plasters, etc. *Lectures and recitations, W.,* 1:30; *two laboratory periods; two credits.* Mr. LANGENHAN.

Pharmacy 60. Undergraduate Thesis. *Two credits.* Mr. KREMERS.

Pharmacy 50. History of Pharmacy. *F.,* 3:30; *one credit.* Mr. KREMERS, Miss WAKEMAN.

SECOND YEAR. SECOND SEMESTER

Chemistry 27. Pharmaceutical Chemistry (Organic). *Lectures and recitations; Tu., Th., F.,* 10. *Two laboratory periods; five credits.* Mr. KREMERS, Miss WAKEMAN.

Chemistry 40. Plant Chemistry. Continued from first semester. Mr. MILLER.

Chemistry 28. Alkaloid Assay. *One credit.* Mr. LANGENHAN.

Botany 111. Microscopical Examination of Drugs and Foods. The characteristics of powdered drugs and food products, and methods of detecting adulterations. *M., W., F.,* 8 *to* 10. *Three credits.* Mr. DENNISTON, Mr. ELWERS.

Botany 132. Pharmacognosy. Continuation of first semester's work. Mr. DENNISTON.

Pharmacy 121. Prescription Practice. The study of the prescription and of the materials that enter into it; practice in the compounding of physicians' prescriptions; also the study of physical, chemical and therapeutical incompatibilities. *Lectures and recitations; M., W.,* 1:30; *two laboratory periods; four credits.* Mr. LANGENHAN.

Pharmacy 30. Undergraduate Thesis. *Continued from first semester.*

Pharmacy 50. History of Pharmacy. *Continued from first semester.*

Students who desire to include pharmaceutical studies as a part of their general college education will have to elect the prerequisite studies enumerated below to accomplish this end. Such a course, if to lead to the degree of *Bachelor of Science, Phar-*

macy Course, must include courses 1, 10, 20, 11, 40, and 50, in Pharmacy, and course 132 in Botany.

Basal sciences: Chemistry 1, 11, 117 or their equivalents. Botany 1 and 130 or its equivalent. Physics 1. These should be taken during the first and second years.

Advanced sciences. Chemistry 26 and 27. Botany 110 and 111. These courses should be taken during the third year in order that the courses in pharmacy and pharmacognosy mentioned above may be taken during the fourth year.

The language requirements of this course are English 1, French 1, and German 2S, or their equivalents, which should be taken during the first and second years.

The major study and thesis may be taken in chemistry, botany, pharmacy, or any department in which the student is sufficiently prepared to do such work. For the rules governing the major study and thesis see Index under Major Study.

Additional electives sufficient to make 120 unit-hours may be chosen upon consultation with the adviser for pharmacy students.

THE LIBRARY SCHOOL

MATTHEW S. DUDGEON, Director

MARY EMOGENE HAZELTINE, Preceptor

CLARENCE B. LESTER, In Charge of Special Course

PURPOSE OF THE SCHOOL

The purpose of the course in general library science is to provide training that shall fit its students to become well rounded library workers. While the time is necessarily devoted largely to a study of library technique and library administration, the broader educational and literary features of the profession are also strongly emphasized. The course includes the fundamental principles of bibliographical, technical, and administrative library work that are necessary to meet the demands of the library world, developed along practical

lines. The students have exceptional opportunities to come into contract with actual rather than theoretical problems, and to work these problems out to practical solution. The instruction in general library science may be taken:

(a) As an independent library course of one year, by all who meet the entrance requirements of the school. The certificate of the Library School is given to those who successfully complete this course.

(b) As a joint course by senior students in the College of Letters and Science, who qualify for entrance. Students who take the joint course may not begin the work of the Library School until they have obtained at least 96 credits in the College of Letters and Science and passed the entrance examinations of the Library School. Of the twenty credits of Library School work accepted by the University, four may be counted toward an English major, if the candidate chooses that subject. This joint course leads to the degree of Bachelor of Arts from the University, and to the certificate of the Library School.

THE SPECIAL COURSE

In coöperation with the Legislative Reference Department of the Wisconsin Free Library Commission, the Library School also offers a special course of training for legislative and municipal reference work and the various sociological phases of library service. This course is open only to those with such education, experience, and personal qualities as fit them for this kind of work. This course prepares for distinctly special library work, as distinguished from the more general public library field. It is intended to meet the demand for trained library workers in a field where knowledge of subject matter is of greater importance than a preliminary mastery of library technique. It supplements this knowledge of subject matter with the more essential of the technical and professional phases of the library work necessary to insure good library administration. This course covers a special summer session beginning in August, and the two following University semesters.

ENTRANCE REQUIREMENTS

Each candidate for admission to the course in general library science must fill out an application blank, copies of which can be obtained from the Preceptor, Miss Mary Emogene Hazeltine, Library School, Madison, Wisconsin.

Without exception, all such applicants are required to take the entrance examinations, which are held on the second Friday in June of each year. These examinations are competitive, and can be taken only at the time specified. They cover history, general literature, current events, and German. Only those who by personal interview or otherwise demonstrate a personal fitness for the work will be considered eligible.

Applicants for the joint course take these examinations at the end of their junior year. Experts are agreed that the best foundation for success in library work is a sound general education, and the ideal plan of preparation is a four year college course, followed by one or more years of technical training. It is for those who are not able to afford so much time, that the joint course has been arranged. Applicants for the independent course of one year should bear in mind the importance of a college course as an educational equipment for library work. Students will be admitted only at the beginning of the first semester.

Accepted candidates for the course in general library science must meet several extra entrance requirements before joining the classes in the fall. All who have not had experience in library work, must spend at least one month in actual work in a designated library before the school opens in September. Candidates must be skillful with the typewriter before entering, as the school requires its use in the preparation of many of the lessons, and no instruction in this is given in the school. It is also required that the standard "library handwriting" be mastered. Accompanying the application blank is a required list of books, to be read in preparation for the first recitation of the school year in book selection. These requirements apply both to students in the independent course and in the joint course.

The course in legislative reference work is intended for college graduates with special aptitude and personal qualifica-

tions for this type of library service, who have a definite preparation in political science, economics, and sociology. The number enrolled is necessarily limited and admission is somewhat a matter of competition based upon the evidences of fitness presented. Application blanks may be obtained by applying to C. B. Lester, Legislative Reference Library, Madison, Wisconsin.

TUITION AND EXPENSES

For students taking the one year of instruction in general library science the fee is $50 for the course for residents of Wisconsin, $25 being payable at the opening of each semester. For non-residents, the fee is $100 for the course, $50 being payable at the opening of each semester. The average cost of text-books and supplies for each student is estimated to be $25 for the year.

For students taking the joint course or the legislative reference course, the fee will be that required by the University as registration and incidental fees. If however, these are less than the stated Library School fees, the student will be required to make up the difference.

COURSE OF STUDY AND CREDITS

First semester. Cataloguing (5 credits), Classification (3), Reference (3), Evaluation and selection of books (1), Trade bibliography and publishing houses (1), Library economy (1), Administration (1).

Second semester. Reference (3) credits, Library economy (3), Subject bibliography (2), Evaluation and selection of books (1), Children's literature (1), Administration (1), Documents (1), Field practice (3). The thesis for joint course students will be under the direction of the University department in which they choose their major subject, and the bibliography included in it will be accepted by the Library School in satisfaction of its thesis requirements.

Candidates for the degree of Bachelor of Arts who secure, as part of the 120 credits required for the degree, twenty credits in the Library School, will be awarded the certificate of the Library School upon the completion of the full number of credits in the school as given above. The satisfaction of

the requirements for both the degree and the certificate, under this plan, will normally involve residence at the University for four years and one summer session.

The instruction in legislative reference work is made up of three elements which together constitute a single unitary course.

I. Bibliographic and Technical Library Studies.

These include such fundamental courses as classification, cataloging, reference, public documents, subject bibliography, selection and acquisition of material on current bibliography, problems, library administration, etc.

II. Elective Work at The University of Wisconsin.

To each student there is assigned work in courses given at the University, especially in political science and economics. This assignment is an individual matter for each student and the exact nature of the courses recommended depends both upon the academic ability and previous preparation of the student and upon the particular branch of special library work into which he expects to go.

III. Special Instruction and Research Work.

The regular library school work is supplemented by special instruction as to the methods and materials of special libraries, combined with actual practice in the legislative reference library and elsewhere. The research work is upon actual problems arising in the various departments of state and municipal government. These assignments give experience under conditions that are distinctly practical. Weekly reports from the student as to time spent and subject matter covered and detailed reports from the officer or department for which such work is done, as to the efficiency and the personal qualities of the student, are required.

Those taking the special course receive academic credit at the University not only for the regularly assigned courses there, but also for such other work as is recognized by the University authorities to be of definite academic value.

Field Practice

During eight weeks of the course in general library science the regular schedule of class work is suspended and the students are placed in the libraries of the state, where they do

actual library work of all kinds, under the supervision of the local librarian and the members of the faculty. Practice is also given in such libraries as are in process of organization or reorganization under the auspices of the Free Library Commission. The time selected for this work is February and March of each year; this is the busiest season in public libraries, and the time, therefore, that will afford the best experience. The necessary traveling expenses incurred by the students in going to and from the required field practice are after audit either paid by the Commission or credited upon the tuition account. It will be seen in the schedule of credits above, that field practice is granted 3 credits.

SPECIAL CATALOGUE

Detailed information regarding the Library School is given in the special catalogue of the school. A copy of this can be obtained from the Preceptor, Miss Mary Emogene Hazeltine, Library School, Madison, Wisconsin.

For any more specific information as to the legislative reference course, apply to C. B. Lester, Legislative Reference Library, Madison, Wisconsin.

THE COURSE FOR THE TRAINING OF TEACHERS

EDWARD C. ELLIOTT, Director, Professor of Education.

GENERAL STATEMENT

In order to correlate and to provide for the further development of those several activities comprising the work of the University for the preparation of teachers, and to contribute to the improvement of the standards of teaching, especially in the secondary schools of the state, the special course for the training of teachers was established, February, 1908.

The course for the training of teachers is intended to prepare students for teaching and for supervising instruction, particularly in the public high schools of the state. This preparation rests upon the basis of a sound general education, and consists,

in addition, of the following principal parts: (1) special academic instruction in the subjects to be taught; (2) professional training by means of, (a) departmental teachers courses, (b) courses in the departments of Education and Philosophy, and (c) the observation of teaching, under supervision, in the Wisconsin High School and in the Madison Public Schools, and in certain instances by practice teaching.

The demands made upon teachers under modern educational conditions render it highly desirable that preparation for teaching should include one year of graduate study in addition to the four years of college work. Where this is not possible, students are strongly recommended to take two summer sessions, or one semester, of advanced study, entitling them to the special certificate, of which particulars are given below (see page 352). Provision is, however, made for a course to be completed during the four years of undergraduate study, embodying the features outlined above, and leading to the University Teachers Certificate.

UNDERGRADUATE COURSE FOR THE TRAINING OF TEACHERS

The Undergraduate Course for the Training of Teachers is designed to meet the needs of those students who, during the period of undergraduate study, desire to prepare themselves for teaching. For these students, provision is made for such a correlation of academic and professional study as will meet the minimum requirements for teaching.

Admission and Registration.—1. To become a candidate for the University Teachers Certificate, a student must, before December first of the junior year, in addition to the usual registration, register in the Course for the Training of Teachers.

2. Each registrant must indicate for the joint approval of the instructor in charge of the departmental teachers course, of the major adviser, and the director of the course, the subject or subjects, preparation for the teaching of which is contemplated. In no case will more than three related subjects be approved. (A major subject; a major and one minor subject; a major and two minor subjects.)

REQUIREMENTS FOR COMPLETION. 1. Satisfactory fulfillment of the requirements of preparation for teaching of either:

(a) A major subject; or

(b) A major subject and one minor subject; or

(c) A major subject and two minor subjects.

2. To fulfill the requirements of preparation for the teaching of the selected *major* subject, a student must present a total of not less than *twenty* credits; and, in addition, credit for the departmental teachers course in such major subject. (See section, Departments of Instruction (p. 339 ff.), for the credit requirements prescribed by the different departments.)

3. To fulfill the requirements of preparation for the teaching of the selected *minor* subject or subjects, a student must present a minimum of *ten* credits in each minor subject. This minimum may not include any departmental teacher's course. (See section, Departments of Instruction (p. 339 ff.), for the credit requirements prescribed by the different departments.)

4. The recommendation of the departments of the major and minor subjects as to fitness for teaching.

5. In addition to the requirements for the major and minor subjects, the special requirements for the University Teachers Certificate, as indicated in the following section, must be completed.

University Teachers Certificate

The requirements for the University Teachers Certificate shall consist, in addition to the work done in the major subject and other work, of *twelve* credits, to be divided as follows: psychology, (Philosophy 1), *three* credits; one departmental teachers course, *two* credits; education, *seven* credits; including an option of *two* credits in a teachers course in a second department, (June 3, 1907.)

A departmental teachers course may not be credited toward the certificate unless the subject concerned is offered as a major or minor.

The requirement of education is subject to the following conditions:

(a) Credits must be obtained from the following courses: Education 1, 6, 11, 13 and 41. These courses are the only ones in education that may be elected in fulfillment of the requirements for the certificate, except as noted in (b).

(b) Graduates of normal schools are *not* permitted to elect Education 1, 6, 11, 13 or 41 in fulfillment of the requirements for the certificate.

Graduates of the Long Course in Agriculture, graduates of the Long Course in Home Economics, and students satisfactorily completing the Two Year Course for Supervisors of Music, who have complied with the above regulations relative to registration and to approval of major and minor subjects, must fulfill the special professional requirements as indicated. (See Agriculture, p. 339; Home Economics, p. 344; Music, p. 346.)

Graduates of normal schools, candidates for the bachelor of arts degree, must obtain credit for the following special work in the University in order to receive the certificate. Education, *three* credits; one departmental teachers course, *two* credits.

The presentation of a certificate of physical health and fitness from the University Medical Examiner.

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6. Upon the fulfillment of the foregoing requirements a student will be recommended by the director of the course to the President of the University, to receive the certified statement prescribed by section 458b—2 of the Laws of Wisconsin as amended by chapter 514, Laws of 1913. This certified statement indicating the subject, or subjects, the requirements for the teaching of which have been fulfilled, when presented to the state superintendent, entitles the holder to receive a license to teach for one year in any public school in Wisconsin. Graduates who have received this certificate and present satisfactory evidence of good moral character, and two years of successful teaching after graduation, are entitled to receive from the state superintendent an unlimited state certificate.

PROFESSIONAL INSTRUCTION—DEPARTMENTAL TEACHERS COURSES

As stated above, this course rests upon the foundation of a sound general education obtained during the first two years of college work. Very naturally during these two years, the student will begin to direct his study along certain academic lines, until by the beginning of the junior year, his tastes and capacities will enable him to focus his attention more directly upon

those subjects, preparation for the teaching of which is contemplated. During the junior year opportunity will be found to elect certain of the required fundamental professional courses in philosophy and education.

The plan of the course involves a considerable concentration of professional study during the junior and senior years. In addition to the courses in education, this professional training includes courses, within the selected academic departments, especially adapted to the professional needs of students preparing to teach. These departmental teachers courses place their chief emphasis upon the scope and method of presentation of the specific subject matter normally included within the curriculum of the high school and are in charge of instructors especially fitted for the work. They are open only to those students who have previously completed a certain prescribed minimum of academic courses in the subject, usually students of senior or graduate standing. At least one of these courses must be taken by students preparing to teach. Credit for such course is included in the maximum number of credits permitted for a major subject.

For the purpose of affording a practical concrete basis for the work of the several departmental teachers courses, and of the courses in Education, facilities are provided for the observation of teaching in the Wisconsin High School and in the Madison public schools. In a few instances opportunities for practice teaching are afforded.

The observation of teaching carried on in the high and elementary schools of Madison, is under a special agreement with the board of education of the city. By this agreement, a number of teachers in the Madison public schools have been specially designated to coöperate with the university instructors in making the departmental teachers courses and the observational work of the fullest value to the students.

THE WISCONSIN HIGH SCHOOL

The Wisconsin High School, a six year secondary school, was opened in September, 1911, and is maintained by the University as an integral part of the Course for the Training of Teachers. The primary purposes of this school are, (a) the exemplification of sound educational theory and organization, with special ref-

erence to secondary education, and (b) the provision of appropriate facilities for observation and practice teaching. At the present time the school is conducted in the building formerly occupied by the Wisconsin Academy, at the corner of Gilman and State Streets. A new building, costing $150,000, is nearing completion. It will be ready for occupancy in September, 1914.

The details of the organization, program of studies, etc., of the Wisconsin High School will be found in the annual announcement of the school.

DEPARTMENTS OF INSTRUCTION

Only such departments and courses of instruction are here indicated as are immediately related to the professional work mentioned in the Undergraduate Course for the Training of Teachers. The announcements of the several departments and colleges of the University should be referred to for more extended and detailed information regarding the courses of instruction open to those students intending to teach. The director of the course and the departments concerned should be consulted with reference to the fulfillment of the requirements for the Advanced Course for the Training of Teachers.

Agriculture

For detailed information concerning the equipment, and the courses offered in the College of Agriculture, see index under Agriculture.

REQUIREMENTS FOR TEACHING AGRICULTURE AS A MAJOR SUBJECT —UNDERGRADUATE COURSE.—Graduates of the long course in Agriculture, properly registered in the Course for the Training of Teachers, will be entitled to receive the University Teachers Certificate, upon the recommendation of fitness by the dean of the college of agriculture, and upon completing as a part of their elective work, the following special courses: Psychology, *three* credits; Education, *three* credits; Agricultural Education, *four* credits.

GRADUATES OF THE MIDDLE COURSE IN AGRICULTURE, properly registered in the Course for the Training of Teachers at the beginning of the second year, will be entitled to a recommendation

to receive a special license to teach agriculture in the schools of Wisconsin, upon exhibiting evidence of personal fitness for teaching and upon the satisfactory completion of the following special work: Agronomy 120, Agricultural Engineering 2, Dairy Husbandry 2, Economic Entomology 101, Education 1 or 6 or 11 or 13 or 41, Agricultural Education 102, Horticulture 3, Poultry 2, Soils 2, and Veterinary Science 120 or 121.

DEPARTMENTAL TEACHERS COURSE.—Agricultural Education 1. *Second semester; four credits.* Mr. HATCH.

Botany

For a detailed description of the courses offered in botany, as a preparation for teaching, see index under Botany.

Students preparing to teach botany, either as a major or minor subject, are advised to elect courses in both structural and physiological botany, and also those that involve field work.

REQUIREMENTS FOR TEACHING BOTANY AS A MAJOR SUBJECT—UNDERGRADUATE COURSE.—A minimum of twenty credits from the following courses: Botany 1, 103, 104, 105, 106, 110, 129, 130, 146, 147, 150, 160.

REQUIREMENTS FOR TEACHING BOTANY AS A MINOR SUBJECT—UNDERGRADUATE COURSE.—A minimum of ten credits selected from the following courses: Botany 1, 2, 103, 104, 105, 106, 110, 129, 130, 146, 160. Attention is called to courses 1 and 2, which together constitute a year's work and are especially adapted to the needs of those taking a teacher's minor in botany.

DEPARTMENTAL TEACHERS COURSE.—Botany 160. The Teaching of Botany. *Second semester; two credits.* Mr. GILBERT.

Chemistry

For a detailed description of the courses offered in chemistry, as a preparation for teaching, see index under Chemistry.

REQUIREMENTS FOR TEACHING CHEMISTRY AS A MAJOR SUBJECT—UNDERGRADUATE COURSE.—A minimum of twenty credits, including courses 1, 120 (first semester), and 11 or 15 (at least five credits).

REQUIREMENTS FOR TEACHING CHEMISTRY AS A MINOR SUBJECT—UNDERGRADUATE COURSE.—A minimum of ten credits.

DEPARTMENTAL TEACHERS COURSE.—Chemistry 5. The Teaching of Chemistry. Prerequisite, major requirements above indicated; course 11 or 15 may be taken simultaneously. *Second semester; two credits.* MR. WALTON.

Commerce

For detailed information concerning the courses offered in the Course in Commerce, see index under Commerce.

The course in commerce affords adequate 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 Course in Commerce in the arrangement of elective work. Special facilities for pedagogical practice will be given such students in connection with the courses in business administration, and work in addition to that prescribed may be arranged in subjects of especial importance to teachers.

Drawing

See under Manual Training.

Education

For detailed information concerning the equipment, and the courses offered in education, see index under Education.

The following courses are open for election by those students fulfilling, within the University, the requirements in education of the Undergraduate Course for the Training of Teachers. (See index under University Teachers Certificate.)

Education 1. History of Modern Education. *Repeated each semester; two or three credits.* Mr. SEYBOLT.

Education 6. Public Education. *Repeated each semester; two credits.* Mr. ELLIOTT.

Education 11. Mental Development. *Repeated each semester; two or three credits.* Mr. O'SHEA.

Education 13. Principles of Education. *Repeated each semester; two or three credits.* Mr. O'SHEA.

Education 41. Educational Psychology. *Repeated each semester; two or three credits.* Mr. HENMON.

The above mentioned courses are not open for election by normal school graduates fulfilling the requirements for the University Teachers Certificate. For courses open to such students, see announcement of courses under the department of education.

English

For a detailed description of the courses offered in English, as a preparation for teaching, see index under English.

REQUIREMENTS FOR TEACHING ENGLISH AS A MAJOR SUBJECT—UNDERGRADUATE COURSE.—A minimum of twenty-four credits, in addition to the thesis, and exclusive of course 1, (required of all students). Courses 30, 120a, and 50 (a and b) must be included. A total of thirty-six credits, in addition to the thesis and course 1, may be taken. Students who have had an adequate training in Latin or Greek may substitute some other English course for 120a; and any student may substitute courses 123 and 25 for 120a with the approval of his adviser.

REQUIREMENTS FOR TEACHING ENGLISH AS A MINOR SUBJECT—UNDERGRADUATE COURSE.—A minimum, in addition to course 1, (required of all students), of course 30; 50a, and an advanced composition course to be taken in the sophomore or junior year 2, 3, 5, or 6); and one of the following groups; (a) 34 and 35; (b) 36 or 137; (c) 40.

DEPARTMENTAL TEACHERS COURSES.—50a. The Teaching of English. *First semester; two credits.* Mr. BASSETT.

50b. The Teaching of English. (Continuation of 50a.) *Second semester; two credits.* Mr. BASSETT.

French

See under Romance Languages.

Geology

See under Physiography and Geography.

German

For a detailed description of the courses offered in German as a preparation for teaching, see index under German.

REQUIREMENTS FOR TEACHING GERMAN AS A MAJOR SUBJECT—UNDERGRADUATE COURSE.—Students beginning the study of German in the University with course 1a will find it difficult to prepare to teach German as a major subject. Students taking courses 2a and 2b in the freshman year will as a minimum have to devote to German from eight to ten semester hours a year for the re-

maining three years taking thus, including the thesis, a total of at least twenty-four credits in advance of course 2b. For the maximum number of credits that may be elected see p. 191. The following courses are required: courses 10 or 112, 114, 130 or 131, 150 and 151.

REQUIREMENTS FOR TEACHING GERMAN AS A MINOR SUBJECT—UNDERGRADUATE COURSE.—A minimum of course 10 or 112 (with prerequisite) and at least one year course or two semester courses in German literature selected from courses 21 to 28 inclusive, or 130 or 131.

DEPARTMENTAL TEACHERS COURSE.—German 114. The Teaching of German. *Each semester; two credits.* Mr. PURIN.

Government

See under Political Science.

Greek

For a detailed description of the courses offered in Greek as a preparation for teaching, see index under Greek.

REQUIREMENTS FOR TEACHING GREEK AS A MAJOR SUBJECT—UNDERGRADUATE COURSE.—A minimum of eighteen credits in courses 1a, 1b, 2a, 3, and either 105a and 105b or 106.

REQUIREMENTS FOR TEACHING GREEK AS A MINOR SUBJECT—A minimum of courses 1a, 1b, 2a and 3.

DEPARTMENTAL TEACHERS COURSE.—The department of Greek does not offer a regular departmental teachers course. For those preparing to teach Greek opportunity is provided to study the methods and aims of the instruction through the university classes in elementary Greek.

History

For a detailed description of the courses offered in history as a preparation for teaching, see index under History.

REQUIREMENTS FOR TEACHING HISTORY AS A MAJOR SUBJECT—UNDERGRADUATE COURSE.—A minimum of thirty credits, of which at least sixteen must be in advanced courses and thesis.

REQUIREMENTS FOR TEACHING HISTORY AS A MINOR SUBJECT—UNDERGRADUATE COURSE.—A minimum of sixteen credits and also His-

tory 151. These sixteen credits must include at least four in advanced courses.

DEPARTMENTAL TEACHERS COURSES.—History 150. The Teaching of History. *Each semester; two credits.* Mr. CHASE.

History 151. Supplementary Reading for High School Teachers of History. *Second semester; two credits.* Mr. CHASE.

Home Economics

For a detailed description of the courses offered in home economics as a preparation for teaching, see index under Home Economics.

REQUIREMENTS FOR TEACHING HOME ECONOMICS AS A MAJOR SUBJECT—UNDERGRADUATE COURSE.—A minimum credit of courses 2, 3, 4, 5, and such other home economics credits as to make thirty-six to forty. A major may be taken in the general course, in Foods and in Textiles. Graduates of the Course in Home Economics who have fulfilled this minimum credit, and who have been properly registered in the Course for the Training of Teachers will be entitled to receive the University Teachers Certificate, upon the recommendation of fitness by the Department of Home Economics and upon completing as a part of their elective work, the following special courses: Psychology, *three credits;* Education, *five credits;* Departmental Teachers Course, *two credits.*

REQUIREMENTS FOR TEACHING HOME ECONOMICS AS A MINOR SUBJECT—UNDERGRADUATE.—A minimum of fifteen to twenty credits. A minor may be taken in foods, textiles, or housing problems.

(1) A minor in Foods must include home economics courses 1, 3, 4, and other related courses to make fifteen to twenty credits.

(2) The minor in textiles must include courses 2, 5, 11, and other related courses to make fifteen to twenty credits.

(3) The minor in housing problems is intended to be taken with a major or minor in Sociology so that those intending to do the work of sanitary inspector or other social settlement work will have a broad foundation knowledge of the fundamental problems in housing conditions. This minor includes Home Economics 2, 7, 8, 10, for which the prerequisites are Physics 1, Bacteriology 9.

DEPARTMENTAL TEACHERS COURSE.—Home Economics 121. Prerequisite a major or minor in home economics. *Second semester; two credits.* Miss MARLATT, Miss SCHMIT.

Latin

For a detailed description of the courses offered in Latin as a preparation for teaching, see index under Latin.

REQUIREMENTS FOR TEACHING LATIN AS A MAJOR SUBJECT—UNDERGRADUATE COURSE.—A minimum of thirty-two credits, including courses 1, 2, 3, or 5, and 107, or equivalents, and 116.

REQUIREMENTS FOR TEACHING LATIN AS A MINOR SUBJECT—UNDERGRADUATE COURSE.—A minimum of twenty-four credits, including courses 1, 2, 3, or 5, and 107, and one advanced reading course for one year.

DEPARTMENTAL TEACHERS COURSE.—Latin 116. The Teaching of Latin. *First semester; two credits.* Mr. BRANDT.

Manual Arts

For a detailed description of the courses offered in manual arts, as a preparation for teaching, see index under Manual Arts.

REQUIREMENTS FOR TEACHING MANUAL ARTS AS A MAJOR SUBJECT—UNDERGRADUATE COURSE.—A minimum of thirty credits in selected courses.

REQUIREMENTS FOR TEACHING MANUAL ARTS AS A MINOR SUBJECT—UNDERGRADUATE COURSE.—TEACHERS OF SHOPWORK:—A minimum of seventeen credits, including courses 2, 4, 5, one semester of 12, and either 1 or 3 or a selected substitute.

TEACHERS OF DRAWING:—A minimum of seventeen credits, including courses 1 and 1a, 2 (first semester), 3, one semester of 12, and either 13 or 14 or a selected substitute.

DEPARTMENTAL TEACHERS COURSE.—Manual Arts 12. The Teaching and Supervision of Manual Arts. *Throughout the year; four credits, (two credits may be elected either semester).* Mr. CRAWSHAW.

Mathematics

For a detailed description of the courses offered in mathematics as a preparation for teaching, see index under Mathematics.

REQUIREMENTS FOR TEACHING MATHEMATHICS AS A MAJOR SUBJECT—UNDERGRADUATE COURSE.—A minimum of twenty-five credits, including courses 5, 6, and 112 or 115, and the courses that necessarily precede them.

REQUIREMENTS FOR TEACHING MATHEMATICS AS A MINOR SUBJECT —UNDERGRADUATE COURSE.—A minimum of fifteen credits, inclusive of course 5; also course 10 for those making mathematics their principal minor.

DEPARTMENTAL TEACHERS COURSE.—Mathematics 10. The Teaching of Mathematics. *Each semester; two credits.* Mr. HART.

Music

For detailed information concerning the course in music, as a preparation for teaching public school music, see index under Music.

The School of Music has adequate facilities for the training of teachers of public school music. This training includes courses both for those who expect to combine the teaching of other branches with the subject of music in the grades or the high school (see in particular course 6); and for those who desire to fit themselves for the special work of supervision of music in the public schools (see in particular courses announced in public school music). Opportunity is also offered for cultural studies in appreciation of music, history of music, etc.

Attention is called to the special advantages offered in the School of Music for the private study of voice culture, pianoforte, organ, violin and other orchestral instruments, at moderate expense. There is also opportunity for choral practice in the large Choral Union and orchestral practice in the University Orchestra, both of which rehearse weekly throughout the academic year.

Students satisfactorily completing the Two Year Course for Supervisors of Music will be entitled to a recommendation to the State Board of Examiners to receive a special state license to teach music in the public schools of the state. This recommendation will be issued by the Director of the Course for the Training of Teachers, providing,—(a) That the student registers in the Course for the Training of Teachers not later than December 1st, of the first year of residence; (b) That the student has earned special credits as follows: Philosophy 1, (Psychology), *three credits;* Education 13, (Principles of Education), *three credits;* (c) That the student presents a statement from the Director of the School of Music as to general fitness for teaching.

Philosophy

For detailed information concerning the courses offered in philosophy, open for election by students preparing to teach, see index under Philosophy.

The following course (Philosophy 1) must be completed by all students fulfilling the requirements of the Undergraduate Course for the Training of Teachers.

Philosophy 1. Psychology: Introductory Course. *First semester; three credits.* Mr. JASTROW, Mr. SHARP, Mr. OTTO, Mr. STARCH, Mr. ASH.

Physical Education

For detailed information concerning the courses in physical education as a preparation for teaching, see index under Physical Education.

REQUIREMENTS FOR TEACHING PHYSICAL EDUCATION AS A MAJOR SUBJECT—UNDERGRADUATE COURSE.—Students taking a major in physical education must take course 20 for four years, courses 105, 106, 107, 108, 109, 110, 111, 112, 117, secure at least four credits in courses 121–150, and thesis, four credits—a total of 30 credits—and satisfy prerequisites in biology, chemistry, anatomy, and physiology.

Students desiring to receive the professional certificate must take, in addition to the foregoing requirements, courses 113, 114, 115, 116, 118, and secure six credits in sociology and five in hygiene.

REQUIREMENTS FOR TEACHING PHYSICAL EDUCATION AS A MINOR SUBJECT—UNDERGRADUATE COURSE.—Course 20 for two years, courses 109, 110, 111, 112, 117, two or more credits in courses 121–150, physiology 1a and 1b.

DEPARTMENTAL TEACHERS COURSE.—Physical Education 117. Principles of Adaptation and Teaching. *Two credits.*

Physics

For a detailed description of the courses offered in physics as a preparation for teaching, see index under Physics.

REQUIREMENTS FOR TEACHING PHYSICS AS A MAJOR SUBJECT—UNDERGRADUATE COURSE.—A minimum of twenty credits in approved courses.

REQUIREMENTS FOR TEACHING PHYSICS AS A MINOR SUBJECT—UNDERGRADUATE COURSE.—A minimum of ten credits in approved courses.

DEPARTMENTAL TEACHERS COURSE.—Physics 6. The Teaching of Physics. Open to all who elect physics either as a major or as a minor subject. *Second semester; two credits.* Mr. STEVE.

Physiography and Geography

For a detailed description of the courses offered as a preparation for teaching physiography and geography, see index under Geology.

REQUIREMENTS FOR TEACHING PHYSIOGRAPHY AND GEOGRAPHY AS A MAJOR SUBJECT—UNDERGRADUATE COURSE.—A minimum of twenty credits in approved courses in the department of geology including course 110.

REQUIREMENTS FOR TEACHING PHYSIOGRAPHY AND GEOGRAPHY AS A MINOR SUBJECT—UNDERGRADUATE COURSE.—A minimum of twelve credits in approved courses in the department of geology including course 110.

DEPARTMENTAL TEACHERS COURSE.—Geology 110. The Teaching of Physical Geography. *First semester; two credits.* Mr. WHITBECK.

Physiology

For a detailed description of the courses offered in anatomy, physiology, bacteriology and hygiene as a preparation for teaching Physiology, see index under Anatomy, Physiology, Bacteriology, Hygiene.

The departments of anatomy, physiology, bacteriology and hygiene, acting conjointly, have outlined the following as a preparation for teaching human physiology.

REQUIREMENTS FOR TEACHING PHYSIOLOGY AS A MAJOR SUBJECT—UNDERGRADUATE COURSE.—A minimum of twenty-three credits in the following courses: Physiological Chemistry 4 (prerequisite, organic chemistry) four credits; Anatomy 105 (prerequisite, Biology 1) three credits; Anatomy 115, three credits; Physiology 5, nine credits; Bacteriology 1, three credits; General Hygiene 7, one credit.

In order to fulfill these requirements, Physics 1, Chemistry 1, and Biology 1, should be completed before the beginning of the junior year.

Political Science

For a detailed description of the courses offered in political science as a preparation for teaching government see index under Political Science.

REQUIREMENTS FOR TEACHING GOVERNMENT AS A MAJOR SUBJECT—UNDERGRADUATE COURSE.—A minimum of twenty-one credits, in addition to the thesis, in approved courses, and including course 129.

REQUIREMENTS FOR TEACHING GOVERNMENT AS A MINOR SUBJECT—UNDERGRADUATE COURSE.—A minimum of sixteen credits in approved courses.

DEPARTMENTAL TEACHERS COURSE.—Political Science 129. The Teaching of Government. *Second semester; two credits.*

Romance Languages

For a detailed description of the courses offered in French as a preparation for teaching, see index under Romance Languages.

Students preparing to teach Spanish or Italian, should consult with the chairman of the department of Romance Languages.

REQUIREMENTS FOR TEACHING FRENCH AS A MAJOR SUBJECT—UNDERGRADUATE COURSE.—A minimum of twenty credits in advance of second year French. The following courses are required: course 135 and one two-credit composition or conversation course, or two one-credit courses of such work. At least one of the three-credit courses dealing with an extensive period of French literature and course 138 in French pronunciation should be taken. For those taking more than the minimum, course 240 is recommended.

REQUIREMENTS FOR TEACHING FRENCH AS A MINOR SUBJECT—UNDERGRADUATE COURSE.—A minimum of eight credits in advance of second-year French. At least one course in conversation or composition, and one course in some extensive period of French literature, should be taken. The requirements for preparation to teach French as a minor will vary greatly, depending upon the acquirements of the student in first and second year work. All such students are advised to consult with the chairman of the department of Romance Languages during their second year's work in French.

DEPARTMENTAL TEACHERS COURSE.—French 135. The Teaching of French. *Throughout the year; one or two credits.* Miss GAY.

Zoology

For a detailed description of the courses offered in zoology as a preparation for teaching, see index under Zoology.

REQUIREMENTS FOR TEACHING ZOOLOGY AS A MAJOR SUBJECT—UNDERGRADUATE COURSE.—A minimum of twenty credits from the following courses: Zoology 1a, 1b, 5, 102a, 104a, 109b. In special cases other courses may be substituted by permission of chairman of department.

REQUIREMENTS FOR TEACHING ZOOLOGY AS A MINOR SUBJECT—UNDERGRADUATE COURSE.—A minimum of ten credits from the following courses: Zoology 1a, 1b, 102a, 104a, 109b. Attention is called to courses 1a and 1b, which together constitute a year's work and are especially adapted to the needs of those taking a minor in zoology.

DEPARTMENTAL TEACHERS COURSE.—Zoology 120. The Teaching of Zoology. *Second semester; two credits.* Mr. PEARSE.

ADVANCED COURSE FOR THE TRAINING OF TEACHERS

The Advanced Course for the Training of Teachers is designed to meet the needs of those students who desire a more intensive preparation for teaching than that provided for by the Undergraduate Course. As planned at the present time, the special advanced study may be accomplished during one semester of *resident* graduate work or through graduate work during two summer sessions.

ADMISSION AND REGISTRATION.—1. Any student eligible to graduate standing in the University, may, upon the recommendation of the departments concerned, be permitted to register in the Advanced Course for the Training of Teachers, provided, that the previous preparation of the student contains an amount of professional study equivalent to that specified in paragraph 4 of the requirements indicated for the completion of the Undergraduate Course for the Training of Teachers.

2. Any student eligible for entrance to graduate standing in the University, whose previous preparation does not contain an amount of professional study equivalent to that specified in paragraph 4 of the requirements indicated for the completion of the Undergraduate Course for the Training of Teachers, may, upon the recommendation of the departments concerned,

be permitted to register in the Advanced Course for the Training of Teachers, provided, that such student must complete, in addition to the indicated requirements of the Advanced Course, an equivalent of such deficiency.

3. Any student who has completed the work of the junior year of any of the colleges of the University, may, upon the recommendation of the departments concerned, be permitted to register in the Advanced Course for the Training of Teachers, during the following summer session. Under ordinary conditions the requirements for the completion of the advanced course may be fulfilled during the second summer session, it being understood that in addition the requirements for the completion of the undergraduate course are also fulfilled.

REQUIREMENTS FOR COMPLETION.—1. The satisfactory completion of an amount of work equal to at least twelve credits, in addition to the requirements prescribed for the bachelor's degree and for the Undergraduate Course for the Training of Teachers.

2. For those students making special preparation for high school teaching, the twelve credits shall be divided as follows:

Academic subject or subjects	8 credits
Education	4 credits

3. For those students making special preparation for the work of school superintendents and principals, the twelve unit-hours shall be divided as follows:

Education	8 credits
Academic subject	4 credits

4. In connection with the requirements in education noted under (2) and (3) the student must fulfill such special requirements regarding the observation of teaching, visitation of schools, and practice teaching as may be indicated by the department of Education.

5. For those students making special preparation for the work of critic teachers in normal schools, or of instructors in education in normal schools or universities, the entire twelve credits must be taken within the department of education.

Special Certificates

Upon the fulfillment of the requirements indicated above, and upon the joint recommendation of "fitness" by the department of education and the other departments concerned, the student shall be recommended by the director of the course to the President of the University, to receive *The Certificate in the Advanced Course for the Training of Teachers.*

University Summer Session

The announcement of the summer session should be referred to for detailed information regarding the courses open to students in the Advanced Course for the Training of Teachers.

TEACHING FELLOWSHIPS

In accordance with the recognized policy of encouraging graduate study in special directions, and for the purpose of inaugurating a scheme for the more thorough and extended preparation for teaching and supervisory positions in the public schools of the state, the Regents of the University have established six special fellowships, known as "Teaching Fellowships." These are awarded in a manner that will lead to the selection of those graduates of the University of Wisconsin, for whom an additional year of special professional training and experience will result in the attainment of a high degree of efficiency for the public school service of the state. Appointments are made upon the recommendation of the Committee on the Training of Teachers and are for a period of one academic year. Each fellowship has an annual value of two hundred and seventy-five dollars ($275). The holders of these fellowships devote one-half year to special graduate study within the University, and one-half year to apprenticeship teaching, under supervision, in one of the so-called "coöperating high schools." A further payment of approximately one hundred and thirty-five dollars ($135) is made for the service rendered by each fellow in the coöperating high school.

Further details concerning the fellowships, may be obtained from the special bulletin of the Course for the Training of Teachers or from the Director of the Course.

Industrial Teaching Scholarships

For the purpose of encouraging, on the part of skilled craftsmen, special professional preparation for teaching in industrial vocational schools, the regents established, in 1912, one industrial scholarship having an annual value of four hundred dollars ($400). Two of these scholarships were provided for 1913-14. Appointment is for one year, and is made upon the recommendation of the Director of the Course for the Training of Teachers. Further detailed information relative to the conditions for appointment is given in the bulletin of the Course for the Training of Teachers.

GRADUATES OF NORMAL SCHOOLS

Graduates of the advanced course of the normal schools of the state, admitted to the University, may obtain the University Teachers Certificate, or the certificate in the Advanced Course for the Training of Teachers, by fulfilling the specified requirements in their university course. Such normal school graduates, when candidates for the bachelor of arts degree, must present a minimum of three University credits in education.

SPECIAL LECTURES

In order that the Course for the Training of Teachers may be maintained and developed in close relation with the practical educational interests of the state, the University aims each year to enlist the coöperation of presidents and professors of the normal schools, superintendents, principals and others engaged in educational work as special lecturers.

THE COLLEGE OF ENGINEERING

FREDERICK E. TURNEAURE, Dean, Professor of Engineering.

ORGANIZATION OF THE COLLEGE

The College of Engineering is organized in the belief that a thorough-going fundamental training is the first essential to a successful engineer, but that this fundamental training may be best secured not alone by theoretical study, but by giving attention as well to the practical application of the principles involved. It is further a leading thought that after the fundamental principles have been mastered, a certain measure of specialization in the main lines of engineering is advisable because of the great development of engineering in recent years, and the various phases which it is rapidly assuming. It is the endeavor of the college to combine a reasonable amount of specialization, during the later years of its courses, with a thorough grounding in the fundamentals during the earlier portions; and in carrying out this plan, it endeavors to make the mathematical and theoretical courses strong in the earlier years, while the drawing and shop courses continue progressively from the beginning to the end. It also introduces sufficient foreign language to enable its graduates to read the professional German and French literature, and aims to give so much of a mastery of the English language as to enable its graduates to present professional subjects with ease, clearness, and effectiveness.

REQUIREMENTS FOR ADMISSION TO THE COURSES LEADING TO THE B. S. DEGREE

Students are admitted either upon examination at the University or upon certificates from accredited schools, except that students from other colleges and universities and adult special

The College of Engineering Circular, giving detailed information concerning the college, may be obtained upon application to the Registrar of the University.

students are admitted in accordance with the provisions stated on pages 122 and 123.

The requirements for the admission of regular students are stated fully on page 106.

Preparation in Algebra for Engineering

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. It is essential that students in the engineering courses shall possess a good working knowledge of algebra *at the beginning of their course*, and it is the purpose of the test to secure this by requiring a review of the subject shortly before entering the University. Students failing the test may not continue with regular freshman mathematics, but will be required to take a review of preparatory algebra during the first semester. A special course is provided for this purpose.

In performing the fundamental operations of algebra, such as multiplication and division, the use of parentheses, the solving of numerical and literal equations of the first and second degrees, the simplification of fractions and radicals, and the putting of problems into equations, it is of the first importance that the student should have distinct notions of the meaning and reasons for all that he does, and be able to state them clearly in his own language. He should be able to perform all these operations, even though somewhat complex, with rapidity, accuracy, and neatness. In his preparatory studies the student is advised to solve a great many practical problems and to describe fully the reasons for the steps taken.

STUDENT ADVISERS

In the selection and arrangement of studies, all students are under the supervision of advisers. It is the duty of the advisers to issue class cards at the opening of each semester, admitting students to their classes, to receive the regular semester reports from instructors, and special reports on deficient students, and to report to the faculty all cases requiring special action.

Reports to parents or guardians on the work of students are sent from the Registrar's office at the end of each semester.

FEES AND EXPENSES

Tuition for residents of the State of Wisconsin.....	Free
Tuition for non-resident students—per semester....	$50 00
General fee per semester	12 00
General fee for four weeks summer term, shop or field work	7 00
Assaying fee (Mining 20).....	15 00

The fees for graduate students are the same as for undergraduate students, except the incidental fee which is $12.00.

A laboratory fee of $2 per unit-hour (two hours per week of actual work) per semester is charged in all the engineering laboratories, and for the use of surveying instruments in the field. Students taking laboratory theses are charged a fee of $5.

Students working in any of the other laboratories of the University are also required to pay a fee or to make a deposit to cover the cost of the materials and repairs to instruments used by them.

At the beginning of the freshman year, students must be prepared to meet an expenditure of about $70 for laboratory fees, drawing instruments, textbooks, and military uniform. For the second semester these expenses will not exceed $10. For subsequent years the fees and textbooks will amount to from $15 to $20 per semester.

Rooms, furnished and unfurnished, can be obtained in the city at reasonable rates. The cost of board in clubs is from $3.50 to $4.00 a week; in private families from $4.00 to $5.00 a week.

EQUIPMENT

Buildings

The work of the college is carried on in five large buildings. The main building is a four-story structure built for the special use of the College of Mechanics and Engineering. It contains the offices, recitation and drawing rooms, the engineering library and laboratories for work in mechanical engineering, steam, and the testing of materials. A second large building of simple construction contains the electrical laboratories and

the various departments for shop instruction. A third building contains the laboratories for chemical engineering. Laboratory work in hydraulics is provided for in a large concrete building situated on the shore of Lake Mendota. The mining building contains the ore dressing and assaying laboratories.

For chemistry the engineering students go to the Chemical Building, for physics and other natural sciences to Science Hall, and for language, mathematics, and other similar work, to the literary halls of the University. In this way the students of engineering come into daily contact with the students in the other courses, to the great advantage of all classes.

Libraries

For a general account of the library facilities of the University, see page 82. The engineering library is housed in the main engineering building, where reading-room facilities are provided for about one hundred students. The collection of technical books is very complete and includes files and current numbers of about two hundred and fifty periodicals.

Laboratories and Apparatus

The engineering laboratories are well equipped for purposes of instruction and investigation.

Bacteriological Laboratories. For a description of these see page 78.

The Bridge Engineering Department owns several autographic extensometers and deflectometer for determining bridge stresses under moving train loads. The department also possesses a large number of photographs, drawings, and lantern slides illustrating details, erection methods, and complete structures of a great variety of design.

Chemical Engineering and Applied Electrochemistry Laboratories. In the Chemical Engineering Building are laboratories for instruction in chemical technology and applied electrochemistry. Rooms are equipped for technical gas and fuel examinations, the equipment comprising all standard forms of analytical apparatus, gas and fuel calorimeters. Steam stills, evaporators, centrifugals, vacuum dryers, digesters, vacuum and pressure pumps, melting, roasting, and calcin-

ing furnaces and other similar apparatus are installed for the study of chemical manufacture.

In the crushing and grinding room are various commercial types of course and fine crushers and disintegrators for treatment of ores and other raw materials. Magnetic, electrostatic, and other forms of separators are included in the equipment.

The applied electrochemistry equipment comprises a great variety of electrochemical appliances, a complete electroplating and refining room, two electric furnace rooms with various types of furnaces and sources of power, both alternating and direct, aggregating over 250 horse-power.

A complete equipment of base metal and platinum thermocouples, resistance thermometers, radiation and optical pyrometers, millivoltmeters, potentiometers, and furnaces are available for the testing of steels, refractory materials, ores, etc.

Metallographic miscroscopes of various types, furnaces, pyrometers, grinding and polishing machines, and photographic rooms are installed for the study of the structure and effects of heat and mechanical treatment of metals and alloys.

THE ELECTRICAL LABORATORIES comprise a dynamo laboratory, a high potential laboratory, a photometry laboratory, and a standards laboratory.

These are all housed in the same building, and have recently been extensively remodeled. Their equipment is unusually complete and every facility is offered for efficient work. The department of electrical engineering co-operates with the Wisconsin Railroad Rate Commission in the use of its laboratories for standardizing work.

THE HYDRAULIC LABORATORY, which occupies its own special building, is located on the shore of Lake Mendota. The facilities, therefore, are especially good for studying problems where large quantities of water under low heads are required. The university water works pumping station and pressure storage tank house, which immediately adjoin the hydraulic laboratory, provide a water supply under heads up to about 170 feet. The laboratory is unusually well equipped. It has a thirty-inch centrifugal pump furnishing up to 35,000 gallons per minute, five concrete measuring chambers with a total capacity of about

10,000 cubic feet, various weir boxes and weirs, pipes of different materials and sizes, Venturi, and meters of the disc and piston type, turbines, overshot and tangential wheels, pumps of various types, including two air lift pumps, hydraulic rams, and a full supply of apparatus designed for experimental purposes.

The Machine Shop affords excellent facilities for mechanical practice. It embraces a main machine room properly equipped; a carpenter shop supplied with wood-working machines; a forge room provided with forges and their equipment with blast and exhaust fan and annealing and case-hardening furnace; a foundry room whose equipment consists of a cupola, brass furnace, and core oven with the necessary small tools; a woodwork room supplied with benches, carpenter tools, and wood turning lathes; and a pattern room furnished with the requisite tools.

Mining and Metallurgical Laboratories. These laboratories are in a separate mining building and cover about ten thousand square feet of floor space. The assay laboratories include a furnace room, a chemical laboratory and balance room equipped with all the important types of fire assay apparatus. The ore dressing laboratories include crushing, grinding, sizing, classifying, concentrating, and amalgamating equipment. The metallurgical equipment comprises special types of furnaces and kilns, clay moulding and testing apparatus, cyanide plant, pyrometers, and other accessories. Special facilities are offered for research work.

The Steam and Gas Engineering Laboratory. This laboratory is well equipped with a variety of steam and gas engines, specially arranged for experimental work, and for demonstration of the principles discussed in the class room. One of the most important of these is a fifty horse-power cross compound steam engine specially arranged for testing with either superheated or saturated steam.

There is also installed a fifteen-ton refrigerating plant, consisting of a Corliss engine direct-connected to a horizontal double-acting ammonia compressor. With the above compressor there are installed double pipe condensers and brine coolers, brine tanks, and brine coils.

This laboratory also contains a twenty-five kilowatt steam turbine, a fifty horse-power two-stage air compressor directly connected to a compound condensing engine equipped with the Meyer valve gear; also various other types of steam, gas, gasoline, hot air engines and gas producers, and a small vertical boiler and engine. Special equipment has recently been completed for the measurement of air by a number of different methods. A very complete apparatus for testing the efficiency of shaft bearings of various types has been built in the college shops and is now used by students in regular laboratory courses. The equipment of the University Heating Plant, the Capitol Heating Plant and the plant of the Madison Gas and Electric Company are available and used by the students as part of their regular laboratory work.

Transmission dynamometers, belt testing machines, gear transmissions, friction testing machines, etc., are provided for experimental work in the transmission of power.

Excellent facilities are also provided for carrying on engineering research work. Special facilities are available to graduate students who wish to pursue advanced research work.

THE SURVEYING LABORATORY. By an agreement with the director of Washburn Observatory, the surveying laboratory shares in the free use of the extensive apparatus belonging to that observatory, including, in addition to the large equatorial telescope and the meridian circle collimators, transit micrometers, chronograph, sidereal and meantime clocks, zenith telescopes, a transit instrument of the broken type, chronometers, an altazimuth, a universal instrument of the German type, spherometer calipers, and a complete set of meteorological instruments.

In addition to this equipment the surveying laboratory contains all the portable, astronomical, and field instruments needed for extensive triangulation, topographic, hydrographic and railroad surveys, including theodolities, altazimuth, tidal gauge, heliotropes, Kern precise-level and new U. S. C. & G. S. precise-level outfits, sounding apparatus, base-line apparatus, including a new "invar" tape, current meters, transits, compasses, levels, planetables, telemeters, and such special instruments as planimeters, pantographs, sextants, computing machines, aneroid barometers, etc.

THE ROAD MATERIAL TESTING LABORATORY. A complete laboratory for the testing of road materials is being installed. The most important pieces of apparatus already available are a standard N. B. M. brick rattler of the latest type, a four cylinder Deval abrasion machine, a Page impact machine for testing the toughness of rock, and an impact machine for testing the cementing value of rocks. Other needed apparatus for testing bituminous materials will be installed the present year.

Arrangements have been made with the chemical engineering department whereby special instruction is given to highway engineers on the chemistry of bituminous materials and excellent opportunities are offered for learning the usual laboratory tests on asphalts, tars, and oils.

THE TESTING LABORATORY is supplied with a 600,000 pound hydraulic universal testing machine (designed in the laboratory) taking tension and compression specimens 10 feet and beams 20 feet long; a Riehlé torsion machine taking shafts 15 feet long and 3 inches in diameter; a 50,000 pound Johnson beam machine taking beams 18 feet long; six Olson and Riehlé universal machines from 10,000 to 100,000 pounds capacity; a Thurston torsion machine; a Russell impact machine; a Brinell hardness tester; several small beam and wire machines; a refrigerator and a gas furnace for freezing and heating tests; a Smith concrete mixer; a good equipment for tests of cement and plain and reinforced concrete; and appliances for testing road-building material.

THE CEMENT LABORATORY contains a full supply of necessary apparatus for making standard tests: baths, self-recording thermometers, Boehme hammer, complete one-thousand-pound Riehlé and Fairbanks testing machines, etc.

THE FOREST PRODUCTS LABORATORY. There has recently been established at the University the Research Laboratory of the Forest Service, United States Department of Agriculture, in which is conducted the research work of the department relative to the utilization of forest products. This laboratory is conducted in coöperation with the work of the University, and offers especially favorable opportunities for engineering students to carry on advanced study and research pertaining to the utilization of forest products. These opportunities are,

primarily, of value to students in mechanical and chemical engineering.

The investigative work and equipment of the laboratory includes the following divisions of work: (1) Timber Physics, (2) Timber Tests, (3) Wood Preservation, (4) Wood Distillation, (5) Wood Pulp, (6) Chemistry of Wood, (7) Engineering. The equipment is complete in all respects, and is such that it is possible to approximate commercial conditions much more closely than is done in the ordinary laboratory work.

Detailed information is contained in a special circular, which will be furnished on request.

Paving Material Museum. This museum includes an excellent exhibit of paving supplies and samples of both old and new pavements, both foreign and domestic, for use in the courses in Roads and Pavements.

The Engineering Museum contains a collection of models illustrating problems in descriptive geometry, stereotomy and kinematics, besides many models of bridges and hydraulic structures. There are also numerous industrial exhibitions of engineering interest and value.

A further description of the engineering laboratories and museums may be found in the separate bulletin issued by the College of Engineering.

COURSES OF STUDY AND DEGREES

Courses Leading to the B. S. Degree

The College of Engineering offers five systematic four-year courses leading to the B. S. degree.

Civil Engineering.
Mechanical Engineering.
Electrical Engineering.
Chemical Engineering.
Mining Engineering.

Students who complete any of the above four-year courses are graduated with the degree of *Bachelor of Science*, the diploma containing a specific designation of the course taken.

The above courses may also be taken as five-year courses leading to the B. S. degree. The additional year will make it possible to include a large amount of work in the College of Letters and Science.

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.

The degrees of *Civil Engineer*, *Mechanical Engineer*, *Electrical Engineer*, *Chemical Engineer*, and *Engineer of Mines* are conferred as second degrees (a) 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 and present a satisfactory thesis; (b) upon graduates of the College of Engineering of the University of Wisconsin who have spent three years in professional work, at least one of which must have been in a position of responsibility, and who present a satisfactory thesis.

The degrees of *Master of Science* and *Doctor of Philosophy* are conferred upon graduates of the engineering courses under the same requirements as apply to graduates of the College of Letters and Science. For a statement of these requirements see Index under Degrees.

Six-Year Courses Leading to the B. A. Degree and an Engineering Degree

By properly arranging their elective studies, students in the College of Letters and Science secure their *B. A.* degree at the end of four years, and the *B. S.* degree in engineering in two additional years. These students will register in the College of Letters and Science during the first four years of residence. They will elect during their collegiate course the studies of the first two years of the engineering course which they plan to pursue later, with the exception of shop work. This may be taken as an extra study, or may be taken during vacation time. Upon receiving the *B. A.* degree they will be admitted as juniors in the College of Engineering.

By utilizing the opportunities offered in the summer session students may in most cases secure the professional degree at the end of the sixth year.

Modern Language Requirements in all Engineering Courses*

When two years of French or German is presented for entrance an additional year of foreign language is required. The foreign language offered for entrance should preferably be continued in the University.

When three years of one foreign language or four years of two or more foreign languages is accepted for entrance no additional foreign language is required.

Students who present the required number of units for entrance and who are graduates of accredited schools will be admitted without a preparation in foreign language, but subject to a condition in the same. In this case there are required sixteen semester hours in French or German. If French be taken and an average mark of 85 or over be made in the first eight hours, then the remaining eight hours may be taken in another foreign language.

Summer Vacation Work

All engineering students are required to take summer vacation work in addition to the work of the four academic years. For civil engineering students this work consists of four weeks of field work, following either the sophomore or junior year. For mechanical, electrical, and chemical engineers four weeks of shop work is required. The mining engineers are required to take six weeks of surveying, following either the freshman or sophomore year, and class work in mining and geology, following the junior year.

Inspection Trips

Inspection trips, aggregating a week or ten days, are required of all engineering students during the junior and senior years. These trips are arranged for by the various committees, and industries which best illustrate the work of the course are inspected. The students are accompanied by members of the instructional staff.

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* For satisfactory reasons, the Faculty will permit the substitution of Spanish for French or German.

Non-Resident Lecturers

It is the practice of the college to invite each year a number of prominent engineers to deliver one or more lectures before the student body on various phases of engineering practice. The purpose of these lectures is to enliven the interest of the student, and to broaden his horizon rather than to give specific instruction.

OUTLINE OF ENGINEERING COURSES

CIVIL ENGINEERING COURSE

Leading to the B. S. Degree

FRESHMAN YEAR

First Semester		Credits
A. English 1 or	English Prose Style. Composition. 3 credits	3 or 4
B. Foreign Language	German or French. 4 credits	
Mathematics 101	Algebra	5
Drawing 1	Elements of Drawing	3
Chemistry 2	General Chemistry and Qualitative Analysis	3
Topographical Engr. 1	Elements of Surveying and Mapping	2
Physical Education		1
Military Drill		1
	Total	18 or 19

Second Semester		Credits
A. English 1 or	English Prose Style. Composition. 3 credits	3 or 4
B. Foreign Language	German or French. 4 credits	
Mathematics 102	Trigonometry and Analytical Geometry	5
Drawing 2	Elements of Drawing	3
Chemistry 2	General Chemistry and Qualitative Analysis	3
Topographical Engr. 2	Elementary Surveying and Mapping	2
Physical Education		1
Military Drill		1
	Total	18 or 19

SOPHOMORE YEAR

First Semester		Credits
Mathematics 104	Calculus	4
Physics 51	General Lectures and Laboratory Practice	5
Drawing 3	Descriptive Geometry	3
Topographical Engr. 3	Land Surveying and Mapping	4
Railway Engr. 1	Railway Curves	2
Physical Education		1
Military Drill		1
	Total	20

Second Semester		Credits
Mathematics 105	Differential and Integral Calculus	4
Physics 52	General Lectures and Laboratory Practice	5
Mechanics 1, 2	Statics, Mechanics of Materials	5
Topographical Engr. 4	Advanced Surveying and Mapping	3
Physical Education		1
Military Drill		1
	Total	19

Summer Work, four weeks.

A. For students entering with advanced language preparation (three years of one foreign language or four years of two or more foreign languages).

B. For students entering with two years of French or German.

JUNIOR YEAR

	First Semester	Credits
Mechanics 3	Mechanics of Materials	5
Mechanics 51	Materials of Construction	2
Hydraulic Engr. 1	Hydraulics	4
Railway Engr. 2a	Railway Location and Construction	2
Railway Engr. 2b	Practice in Field and Office Work	3
A. Electrical Engr. 106 or...	Elements of Electrical Engineering.... 2	
Electrical Engr. 105	Testing Direct Current Machinery..... 1	3
B. English	 3	
	Total	19

	Second Semester	
Mechanics 51	Materials of Construction	2
Hydraulic Engr. 110	Hydrology	2
Railway Engr. 3	Maintenance of Way	2
Railway Engr. 110	Masonry Construction	2
Structural Engr. 2	Bridge Stresses, Simple Structures	4
Steam & Gas Engr. 7	Engines and Boilers	2
A. Electrical Engr. 106 or...	Elements of Electrical Engineering.... 2	
Electrical Engr. 105	Testing Direct Current Machinery..... 1	3
B. English	 3	
Elective	.....	3
	Total	20

SENIOR YEAR

	First Semester	Credits
Structural Engr. 3	Steel Structures. Roof Truss and Plate Girder Design	4
Structural Engr. 105	Concrete Structures. Analysis of Stresses	2
Steam and Gas 127	Calibration of Instruments	2
Hydraulic Engr. 111	Water Supply	3
A. Elective or	 3	
B. Electrical Engr. 106 or	Elements of Electrical Engineering.... 2	3
Electrical Engr. 105	Testing Direct Current Machinery..... 1	
Electives	.....	5 or 6
	Total	19 or 20

	Second Semester	
Structural Engr. 4	Steel Structures. Railway Bridge. Truss Design	3
Railway Engr. 111	Substructures	1
Structural Engr. 111	Concrete Structures. Analysis of Stresses	2
Engr. Contracts	Contracts and Specifications	2
Hydraulic Engr. 114	Rivers and Canals	1
A. Elective or	 3	
B. Electrical Engr. 106 or...	Elements of Electrical Engineering.... 2	3
Electrical Engr. 105	Testing Direct Current Machinery..... 1	
Thesis and Electives	.....	7 or 8
	Total	19 or 20

Highway Engineering Group of Electives

Junior Year—Geology, Roads and Pavements 101

Senior Year—Roads and Pavements 102, 103, 104
Structural Engineering 112, Highway Bridge Design
Geology

Sanitary Engineering Group of Electives

Junior Year—Water Analysis

Senior Year—Bacteriology
Hydraulic Engineering 112, 113

MECHANICAL ENGINEERING COURSE

Leading to the B. S. Degree

FRESHMAN YEAR

	First Semester	Credits
A. English 1 or	English Prose Style. Composition. 3 credits	3 or 4
B. Foreign Language	German or French. 4 credits	
Mathematics 101	Algebra	5
Drawing 1	Elements of Drawing	3
Chemistry 2	General Chemistry and Qualitative Analysis	3
Shopwork 1, 2, 3	Pattern Making, Bench and Forge Work	2
Physical Education		1
Military Drill		1
	Total	18 or 19

	Second Semester	
A. English 1 or	English Prose Style. Composition. 3 credits	3 or 4
B. Foreign Language	German or French. 4 credits	
Mathematics 102	Trigonometry and Analytical Geometry	5
Drawing 2	Elements of Drawing	3
Chemistry 2	General Chemistry and Qualitative Analysis	3
Shopwork 4, 5	Lathe Work in Metals. Planing and Milling	2
Physical Education		1
Military Drill		1
	Total	18 or 19

SOPHOMORE YEAR

	First Semester	Credits
Mathematics 104	Differential and Integral Calculus	4
Physics 51	General Lectures and Laboratory Practice	5
Machine Design 1	Mechanism	4
Shopwork 6, 7	Tool Making and General Shop Work	3
Physical Education		1
Military Drill		1
	Total	18

	Second Semester	
Mathematics 105	Differential and Integral Calculus	4
Physics 52	General Lectures and Laboratory Practice	5
Drawing 3	Descriptive Geometry	3
Machine Design 2	Valve Gears	1
Mechanics 1, 2	Statics. Mechanics of Materials	5
Physical Education		1
Military Drill		1
	Total	20

Four Weeks of Summer Shop.

A. For students entering with advanced language preparation (three years of one foreign language or four years of two or more foreign languages).

B. For students entering with two years of French or German.

JUNIOR YEAR

First Semester		Credits
Mechanics 3	Mechanics of Materials	5
Mechanics 53	Materials of Construction	2
Steam and Gas 1	Elementary Thermodynamics	4
Machine Design 3	Machine Elements	4
Machine Design 11	Testing Machines and Machine Elements	1
A. Elective or		3
B. English		
Shopwork		2
	Total	21

Second Semester

Steam and Gas 22	Heat Engine Testing	2
Steam and Gas 2	Elementary Thermodynamics	4
Hydraulic Engr. 1	Hydraulics	3
Machine Design 4	Advanced Machine Design	4
Machine Design 12	Testing Machines and Machine Elements	1
Electrical Engr. 103	Electrotechnics	3
A. Elective or		3
B. English		
	Total	20

SENIOR YEAR

First Semester		Credits
Steam and Gas 105	Steam and Gas Engine Calculations	2
Steam and Gas 23	Testing of Heat Engines	2
Comm. Mech. Engr. 101	Commercial Mechanical Engr	3
Electrical Engr. 103	Electrotechnics	3
Electrical Engr. 105	Direct Current Laboratory	2
Shopwork 12	Manufacturing Methods	1
* Electives		7
	Total	20

Second Semester

Comm. Mech. Engr. 102	Power Plant Design	2
Steam and Gas 124	Advanced Heat Engine Testing	1
Electrical Engr. 105	Alternating Current Laboratory	2
Shopwork 8, 9	Heat Treatment of Steels and Pattern Work	2
Machine Design 109	Advanced Machine Design	2
Thesis and Electives		9
	Total	18

* Must include Water Power, 3 credits, first semester, or Hydraulic Machinery, 2 credits, second semester.

ELECTRICAL ENGINEERING COURSE

Leading to the B. S. Degree

FRESHMAN YEAR

A. English 1 or	English Prose Style. Composition. 3 credits	3 or 4
B. Foreign Language	German or French. 4 credits	
Mathematics 101	Algebra	5
Drawing 1	Elements of Drawing	3
Chemistry 2	General Chemistry and Qualitative Analysis	3
Shopwork 1, 2, 3	Pattern Making, Bench and Forge Work	2
Physical Education		1
Military Drill		1
	Total	18 or 19

SECOND SEMESTER

A. English 1 or	English Prose Style. Composition. 3 credits	3 or 4
B. Foreign Language	German or French. 4 credits	
Mathematics 102	Trigonometry and Analytical Geometry	5
Drawing 2	Elements of Drawing	3
Chemistry 2	General Chemistry and Qualitative Analysis	3
Shopwork 4, 5	Lathe Work in Metals. Planing and Milling	2
Physical Education		1
Military Drill		1
	Total	18 or 19

Four years of Summer Work.

SOPHOMORE YEAR

FIRST SEMESTER		Credits
Mathematics 104	Differential and Integral Calculus	4
Physics 51	General Lectures and Laboratory Practice	5
Topographical Engr. 108	General Surveying	3
Drawing 3	Descriptive Geometry	3
Shopwork 6	Tool Making	2
Physical Education		1
Military Drill		1
	Total	19

SECOND SEMESTER

Mathematics 105	Differential and Integral Calculus	4
Physics 52	General Lectures and Laboratory Practice	5
Mechanics 1, 2	Statics and Mechanism of Materials	5
Machine Design 1	Mechanism	4
Physical Education		1
Military Drill		1
	Total	20

A. For students entering with advanced language preparation (three years of one foreign language or four years of two or more foreign languages).
B. For students entering with two years of French or German.

JUNIOR YEAR

First Semester		Credits
Mechanics 3	Mechanics of Materials	5
Steam and Gas 6	Special Course in Thermodynamics	3
Machine Design 2	Valve Gears	3
Electrical Engr. 101a	Direct Currents	4
Physics 54	Laboratory Course in Elect. and Magnetic Measurements	2
A. Elective or B. English		3
	Total	20

Second Semester		
Mechanics 53	Materials of Construction	2
Steam and Gas 6	Special Course in Thermodynamics	3
Steam and Gas 127	Laboratory	2
Electrical Engr. 101b	Direct Currents	2
Electrical Engr. 102	Direct Current Laboratory	2
Electrical Engr. 111	Alternating Currents	3
Hydraulic Engr. 1	Hydraulics	3
A. Elective or B. English		3
	Total	20

SENIOR YEAR

First Semester		Credits
Electrical Engr. 113	Alternating Current Machinery	3
Electrical Engr. 112	Alternating Current Laboratory	2
Electrical Engr. 125	Conference	2
Electives		13 or 12
	Total	20 or 19

Second Semester		
Electrical Engr. 113b	Alternating Current Machinery	2
Electrical Engr. 112b	Alternating Current Laboratory	2
* Contracts	Contracts and Specifications	2
Thesis and Electives		13 or 12
	Total	19 or 18

* Commercial Law or Commercial Mechanical Engineering may be substituted. Of the elective credits ten must be chosen from the following group of electrical applications:

Central Stations and Industrial Applications	3
Photometry and Illumination	2
Electric Railways	2
Transmission and Insulation	3
Dynamo Design	2
Electrochemistry	3
Electric Testing	1
Transient Phenomena	3
Telephony	2
	21

CHEMICAL ENGINEERING COURSE

Leading to the B. S. Degree

FRESHMAN YEAR

First Semester		Credits
A. English 1 or	English Prose Style. Composition. 3 credits	3 or 4
B. Foreign Language	German or French. 4 credits	
Mathematics 101	Algebra	5
Drawing 1	Elements of Drawing	3
Chemistry 2	General Chemistry and Qualitative Analysis	3
Shopwork 1, 2, 3	Pattern making. Bench Work and Forge Work	2
Physical Education		1
Military Drill		1
	Total	18 or 19

Second Semester		
A. English 1 or	English Prose Style. Composition. 3 credits	3 or 4
B. Foreign Language	German or French. 4 credits	
Mathematics 102	Trigonometry and Analytical Geometry	5
Drawing 2	Elements of Drawing	3
Chemistry 2	General Chemistry and Qualitative Analysis	3
Shopwork 4, 5	Lathe Work in Metals, Planing and Milling	2
Physical Education		1
Military Drill		1
	Total	18 or 19

SOPHOMORE YEAR

First Semester		Credits
Mathematics 104	Differential and Integral Calculus	4
Physics 51	General Lectures and Laboratory Practice	5
Chemistry 11	Quantitative Analysis	5
Machine Design 1	Mechanism	4
Physical Education		1
Military Drill		1
	Total	20

Second Semester		
Mathematics 105	Differential and Integral Calculus	4
Physics 52	General Lectures and Laboratory Practice	5
Drawing 3	Descriptive Geometry	3
Mechanics 1, 2	Statics, Dynamics	5
Physical Education		1
Military Drill		1
	Total	19

A. For students entering with advanced language preparation (three years of one foreign language or four years of two or more foreign languages).
B. For students entering with two years of French or German.

JUNIOR YEAR

First Semester		Credits
Mechanics 3	Mechanics of Materials	5
Steam and Gas 6	Thermodynamics	3
Chemistry 120	Organic Chemistry	5
A. Chemistry 130	Physical Chemistry	5
B. English and Electives		
Electives		2
	Total	20

Second Semester		
Steam and Gas 25	Engineering Testing	2
Steam and Gas 6	Thermodynamics	3
Electrical Engr. 106a	Elements of Electrical Engineering	2
Chemical Engr. 1z	Fuel Gas and Oil Analysis	2
Mechanics 53	Materials of Construction	2
A. Machine Design 5		3
B. English		
Electives		6
	Total	20

Summer Work, Chemical Engineering 114 (Chemical Manufacture) 4 credits

SENIOR YEAR

First Semester		Credits
Electrical Engr. 106a	Elements of Electrical Engineering	2
Electrical Engr. 105	Testing Direct Current Machinery	2
Steam and Gas 26	Testing of Heat Engines	1
Electives		15
	Total	20

Second Semester		
Contracts	Contracts and Specifications	2
Thesis and Electives		18
	Total	20

At least 20 credits of the elective work must be taken from the following list:

Applied Electrochemistry	106,	Batteries	2
" "	101,	Laws and Principles	5
" "	102,	Electric Furnaces	3
Chemical Technology	111,	Chemical Machinery and Appliances	2
" "	15,	Industrial Chemistry	2
" "	113,	Gas Manufacture	3
" "	116,	Applied Thermal Chemistry	4
" "	117,	Technical Pyrometry	2
" "	118,	Iron and Steel	2
" "	119,	Metallography	2
" "	120,	Constitution of Alloys	2

This arrangement affords the student an opportunity to specialize in Applied Electrochemistry, Metallurgy, Gas and Fuel Engineering, or Chemical Manufacture.

MINING ENGINEERING COURSE

Leading to the B. S. Degree

FRESHMAN YEAR

	First Semester	Credits
A. English 1 or	English Prose Style. Composition. 3 credits	3 or 4
B. Foreign Language	German or French or Spanish. 4 credits	
Mathematics 101	Algebra	5
Drawing 1	Elements of Drawing	3
Chemistry 2	General Chemistry and Qualitative Analysis	3
Shopwork 1, 2, 3 or	Pattern Making, Bench and Forge Work	2
Topographical Engr. 2	General Surveying	
Physical Education		1
Military Drill		1
	Total	18 or 19

	Second Semester	
A. English 1, or	English Prose Style. Composition. 3 credits	3 or 4
B. Foreign Language	German or French. 4 credits	
Mathematics 102	Trigonometry and Analytical Geometry	5
Drawing 2	Elements of Drawing	3
Chemistry 2	General Chemistry and Qualitative Analysis	3
Shopwork 4, 5 or	Lathe Work in Metals, Planing and Milling	2
Topographical Engr. 2	General Surveying	
Physical Education		1
Military Drill		1
	Total	18 or 19

Summer School Surveying, 6 weeks.

SOPHOMORE YEAR

	First Semester	Credits
Mathematics 104	Differential and Integral Calculus	4
Physics 51	General Lectures and Laboratory Practice.	4
Mineralogy 6	General Mineralogy	5
Chemistry 11	Quantitative Analysis	5
Physical Education		1
Military Drill		1
	Total	20

	Second Semester	
Mathematics 105	Differential and Integral Calculus	4
Physics 52	General Lectures and Laboratory Practice.	4
Mechanics 1, 2	Statics, Mechanics of Materials	5
Drawing 3	Descriptive Geometry	3
Physical Education		1
Military Drill		1
	Total	18

A. For students entering with advanced language preparation (three years of one foreign language or four years of two or more foreign languages).
B. For students entering with two years of French or German.

JUNIOR YEAR

First Semester		Credits
Geology 1	General Geology	5
Mining 101	Excavation	3
Mechanics 3, 4	Mechanics of Materials	5
Steam and Gas 6 or	Thermodynamics	3
* Geology 111	Economic Geology	
A. Elective or		3
B. English		
	Total	19

Second Semester		
Mining 102	Tunneling and Shaft Sinking	3
Mechanics 53	Materials of Construction	2
Steam and Gas 127	Steam Laboratory	1
* Geology 111 or	Economic Geology	3
Hydraulic Engr. 1	Hydraulics	
A. Elective or		3
B. English		
Electives		7
	Total	19

Summer Western Mining Trip. See Mining 110.

SENIOR YEAR

First Semester		Credits
Mining 103, 105	Mining and Mine Engineering	4
Mining 122	General Metallurgy	3
Steam and Gas or	Thermodynamics	3
* Geology 111	Economic Geology	
Electives		10 or 11
	Total	20 or 21

Second Semester		
Mining 105, 107	Ore Dressing and Mine Engineering	4
Mining 123	Metallurgy of Copper and Lead	3
Hyd. Eng. 1 or	Hydraulics	3
* Geology 111	Economic Geology	
Contracts	Contracts and specifications	2
Thesis and Electives		8 or 9
	Total	20 or 21

Of the 25 credits elective, 15 must be taken from one of the following groups:

Mining Group

Railway Engr. 104	2
Structural Engr. 10	2
Electrical Engr.	6
Steam and Gas Engr.	2
Mining Engr.	3

* Given odd years alternating with Steam & Gas or Hydraulic courses.

Metallurgical Group

Metallurgy ..... 6 or 9
Chemical Engr. ..... 6 or 9

Geological Group

Geology, Mineralogy, Petrology ..... 15 credits

COMBINATION ENGINEERING AND COMMERCE COURSE

By electing the following group of studies in economics, students pursuing the five-year course may get all the essential studies of the Course in Commerce, together with a full engineering course.

First Year: Physiography and Physical Geography, 3 credits.

Second Year: Elementary Economics, 3 credits; Commercial Geography, 3 credits for each of two semesters.

Third Year: Money and Banking and Transportation, 3 credits; Commercial Law, 4 credits.

Fourth Year: Elective Group, 3 credits; Business Administration, 2 credits.

Fifth Year: Business Administration, 2 credits; Group and Thesis, 4 credits (if the thesis is taken in Commerce).

Elective for Students in the College of Letters and Science

Students who plan to graduate in engineering, after taking a degree in the College of Letters and Science, should aim to make the following elections during the undergraduate course, in order that the engineering course may be completed in two additional years:

Mathematics 101 to 105; Physics 1 or 51 and 52; Chemistry 1 or 2; Mechanical Drawing, 1, 2, and 3; Topographical Engineering 2, 3, and 4, or Machine Design 1; Applied Mechanics 1, 2.

It is well also to elect some or all of the freshman and sophomore shop work, as an extra study.

Graduation in More than One of the Engineering Courses

Graduates in any of the engineering courses may graduate in any other engineering course after one year of additional study. Students who contemplate doing this should, however, make their elections, especially in the senior year, with this end in view.

DEPARTMENTS OF INSTRUCTION

The unit of reckoning is one hour of class-room work per week, making a one-hour study. Two hours of drawing, laboratory, field, or shop work (which require no outside preparation) count as one hour of recitation.

COURSES GIVEN IN THE COLLEGE OF LETTERS AND SCIENCE

For detailed description of courses given in the College of Letters and Science see Index under Astronomy, Bacteriology and Hygiene, Chemistry, English, French, Geology, German, Mathematics, Meteorology, Physics, Political Economy, and Spanish.

COURSES GIVEN IN THE COLLEGE OF ENGINEERING

CHEMICAL ENGINEERING

CHEMICAL TECHNOLOGY

ASSOCIATE PROFESSOR KOWALKE; MR. MANN, MR. STOREY.

For Undergraduates

10. Inspection Trip. Important chemical and metallurgical plants in the vicinity of Milwaukee and Chicago are visited. Required of seniors.

12. Technical Fuel, Gas and Oil Analysis. Laboratory instruction in the technical analysis and calorimetry of solid, liquid, and gaseous fuels, products of combustion; photometry of gas, etc. Prerequisite, Chemistry 2. *Repeated each semester; two credits.* MR. MANN.

12a. Advanced work on gas and coal analysis, oils for gas making, etc. *Either semester; credits to be arranged.* MR. MANN.

12b. Short laboratory course for mechanical and electrical engineers. *Repeated each semester; one credit.* MR. MANN.

15. Industrial Chemistry. Lectures and recitations on the technology of the alkali, acid, paint, paper, and other important chemical industries. Prerequisite, Chemistry 2. *First semester; two credits.* Mr. KOWALKE.

For Undergraduates and Graduates

111. Chemical Machinery and Appliances. Lectures and recitations relating to the disintegration and sizing of materials; filtration, evaporation, distillation, drying, etc.; materials of construction; transportation and measurement of solids, liquids, and gases. *Second semester; two credits.* Mr. KOWALKE.

113. Gas Manufacture and Distribution. Lectures on the manufacture and distribution of coal, carburetted water, oil, and producer gas; the uses of gas for domestic, manufacturing, and power purposes; recovery of by-products. *Second semester; three credits.* Mr. KOWALKE, Mr. MANN.

114. Chemical Manufacture. Laboratory practice supplementary to course 111; tests of chemical machinery, manufacture and recovery of products, special problems. Prerequisites, Chemistry 2 and 11, and Chemical Technology 111. *Required for chemical engineers as summer work; four credits. Elective for other students, first semester; four credits.* Mr. KOWALKE, Mr. MANN.

114a. Advanced work on special problems. *Second semester; two or more credits.* Mr. KOWALKE.

116. Applied Thermal Chemistry. The thermo-chemistry and physics of combustion, chemical and metallurgical processes; drying; evaporation; furnace calculations and design. *Throughout the year; two credits each semester.* Mr. KOWALKE.

117. Technical Pyrometry. Laboratory instruction in the calibration and use of pyrometers for tests on refractory materials, slags, and furnaces; thermal analysis of steels, ores, and chemical compounds. Prerequisite, Chemistry 2. *First semester; two credits.* Mr. KOWALKE, Mr. STOREY.

117a. A continuation of course 117, special attention given to refractories, slags, and electric furnaces. *Second semester; one or more credits.* Mr. KOWALKE, Mr. STOREY.

118. Metallurgy of Iron and Steel. The manufacture of iron and steel together with the study of the ores, fuels, and refractories used; rolling mill and foundry practice; special and tool steels. Prerequisite, general chemistry and physics. *First semester; two credits.* Mr. Storey.

119. Metallography. A laboratory course comprising the microscopic examination of metals and alloys and a study of their structure as affected by heat and mechanical treatment. Special attention given to tool and alloy steels. Prerequisites, general chemistry and physics. *Repeated each semester; two or more credits.* Mr. Storey.

119a. A continuation of course 119, making of alloys, determination of critical points, etc. *Repeated each semester; two or more credits.* Mr. Storey.

120. Constitution of Iron, Steel, and Other Alloys. Theory of the solidification of alloys based on the solubility relations. Freezing point curves and the application of the phase rule. Detailed study of the diagrams of the iron-carbon and alloy steels; brasses, bronzes, etc. Prerequisites, general chemistry and physics. *Second semester; two credits.* Mr. Storey.

121. Analysis of Bitumens for Highways. The chemical properties of oils, residual asphaltic petroleums, natural asphalts, tars from gas manufacture, etc., used in the construction of highways. *Second semester; two credits.* Mr. Mann.

122. Thesis. The thesis work has for its chief purpose the giving of training in investigation, the planning of the work, the securing of accurate data, and the interpretation of results. In the assignment of thesis work, consideration is given to such lines as are of industrial as well as scientific interest.

123. Thesis Course. In lieu of the thesis, seniors may, upon permission from the department, substitute a thesis course of not less than three credits. The work of this course will be of as independent a nature as possible and will involve written reports which will be bound and filed in the library.

For Graduates

230. Laboratory Work in Chemical Technology. Experimental and library investigation on lines assigned by instructors, together with conferences and written reports. This work follows and is based on the courses in chemical technology. Mr. KOWALKE.

231. Chemical Engineering Seminar. The presentation and discussion of papers dealing with various problems in chemical technology and applied electrochemistry. Mr. KOWALKE, Mr. WATTS.

APPLIED ELECTROCHEMISTRY AND ELECTROMETALLURGY

ASSOCIATE PROFESSOR KOWALKE; ASSISTANT PROFESSOR WATTS.

For Undergraduates

4. Short course dealing with the principles and applications of electrochemistry and the electric furnace to the important industries. Elective for juniors and seniors, but not open to chemical engineers. *One lecture and four hours in the laboratory. First semester; three credits.* Mr. WATTS.

For Undergraduates and Graduates

101. The laws and fundamental principles of electrolysis, with their applications to electro-plating, the refining of metals and electrochemical manufacture. *First semester; five credits.* Mr. WATTS.

101a. A continuation of course 101. Laboratory work and consultations. *Second semester; one or more credits.* Mr. WATTS.

102. The Electric Furnace. Its construction, operation, and industrial applications. One lecture and four hours in the furnace room. *Second semester; three credits.* Mr. WATTS.

106. Batteries. Construction, testing, and operation of primary and storage cells. *Second semester; two or more credits.* Mr. WATTS.

For Graduates

203. Laboratory Work. Lines of experimental investigation in electro-chemistry assigned by instructors, together with occasional conferences and written dissertations. Prerequisite, course 101. *Hours to be arranged.* Mr. KOWALKE, Mr. WATTS.

COMMERCIAL MECHANICAL ENGINEERING

PROFESSORS MACK, THORKELSON; ASSOCIATE PROFESSOR CHRISTIE; SUPERINTENDENT GODDARD, Mr. READ.

For Undergraduates and Graduates

101. A study of commercial problems in mechanical engineering, including patent practice, and application of patent record research to engineering, the principal factors controlling costs, methods of determining the depreciation of machinery and industrial plants, inventories and valuations of existing properties. *First semester; three credits.* Mr. MACK, Mr. THORKELSON, Mr. GODDARD.

102. A study of the principles underlying the selection of power units, including load curves, fixed and operating charges, etc., accompanied by lectures on power plant buildings, designs and estimates. Each student is required to prepare a complete design and estimate in the drawing room for a small direct current power plant. *Second semester; two credits.* Mr. THORKELSON, Mr. READ.

103. Principles of industrial engineering, dealing with the organization and management of industrial and public utility enterprises. *Second semester; two credits.* Mr. CHRISTIE, Mr. GODDARD, Mr. MACK and Special Lecturers.

DRAWING

PROFESSOR PHILLIPS; ASSISTANT PROFESSOR MILLAR; MR. ORTH, MR. MACLIN, MR. THOMAS, MR. GRENOBLE.

For Undergraduates

1. Elements of Drawing. Working drawings; third angle projection. Lettering, tracing, and blue printing. *Repeated each semester; three credits.* Mr. PHILLIPS, Mr. ORTH, Mr. THOMAS, Mr. MACLIN, Mr. GRENOBLE.
2. Elements of Drawing. Working drawings; lettering and sketching; isometric and cabinet drawing. Prerequisite, Drawing 1. *Repeated each semester; three credits.* Mr. PHILLIPS, Mr. ORTH, Mr. THOMAS, Mr. MACLIN, Mr. GRENOBLE.
3. Descriptive Geometry. Problems relating to the point, line, and plane. The generation and classification of lines and surfaces; tangent planes to surfaces; plane sections, intersections and developments. Millar and Maclin's *Descriptive Geometry.* Prerequisite, Drawing 1, 2. *Repeated each semester; three credits.* Mr. MILLAR, Mr. MACLIN.
4. Freehand Lettering. A continuation of the lettering work in courses 1 and 2. *Second semester; one credit.* Mr. ORTH.

ELECTRICAL ENGINEERING

PROFESSORS BEEBE, BENNETT; ASSISTANT PROFESSORS DISQUE, PRICE, SHUSTER, WATSON; MR. CROTHERS, MR. GRAY, MR. KARTAK, MR. KELSO, MR. MILLER.

For Undergraduates

29. Inspection Trip. A trip to the large industrial centers is made at about Thanksgiving time, for the purpose of inspecting manufacturing plants and great engineering works in operation or under construction and is required of seniors. Includes visits to Milwaukee and Chicago, Keokuk and an alternate trip includes visits to Niagara Falls, Buffalo, and Pittsburg.

For Undergraduates and Graduates

101a. Direct Current Machinery. A study of the laws of the electric and the magnetic circuit. The design, construction, and operation of direct current machinery. Prerequisite, Physics 51. *First semester, four credits;* Mr. WATSON.

101b. Direct Current Machinery. Continuation of 101a. *Second semester; two credits.* Mr. WATSON.

102. Direct Current Laboratory. Laboratory tests of generators, motors, and accessory apparatus. Prerequisite, Electrical Engineering 101. *Begins second semester; two credits; first half of first semester, one credit.* Mr. PRICE and laboratory instructors.

103a. Electrotechnics. A short course dealing with the laws of the electric and the magnetic circuit. Design, construction, and operation of electro-magnetic machinery. Generation, transmission, distribution, and applications of electricity. Course intended primarily for mechanical engineers. Prerequisite, Physics 51. *Second semester, three credits.* Mr. BEEBE, Mr. DISQUE.

103b. Continuation of 103a. *First semester; three credits.*

103c. Continuation of 103a and 103b. *Second semester; three credits.*

104. Dynamo Design. In this course are taken up the complete calculation and design of a direct current dynamo. Prerequisite, Electrical Engineering 101. *First semester; one or two credits.* Mr. WATSON.

105. Direct Current Laboratory. A short laboratory course, including tests of dynamos and accessory apparatus, intended primarily for civil, chemical, mining, and mechanical engineers. Should accompany Electrical Engineering 103 or 106. *First semester. Civil Engineers: Last half of first semester; first half of second semester; two credits.* Mr. PRICE and laboratory instructors.

106. Elements of Electrical Engineering. Similar to Electrical Engineering 103. Intended primarily for chemical, civil, and mining engineers. Prerequisite, Physics 51. *Throughout the year; two credits each semester.* Mr. SHUSTER.

106a. Same as 106. *Begins second semester.* Mr. BEEBE.

111. Alternating Currents. An introductory course dealing with the fundamental laws of alternating currents. *Second semester; three credits.* Mr. WATSON.

112. Alternating Current Laboratory. Laboratory tests and operation of alternating current generators, motors, transformers, meters, and other appliances. Prerequisite, Electrical Engineering 111. *Throughout the year; two credits.* Mr. PRICE and laboratory instructors.

113. Alternating Current Machinery and Circuits. A course dealing with the construction and operation of alternating current machinery and appliances. Prerequisite, Electrical Engineering 111. *First semester; three credits. Second semester; two credits.* Mr. BEEBE, Mr. DISQUE.

114. Advanced Alternating Current Laboratory. Primarily for graduates. Advanced laboratory tests with alternating for mechanical engineers. Prerequisite, Electrical Engiing 112. *Second semester; two credits.* Mr. PRICE.

Alternating Current Laboratory. A short course primarily for mechanical engineers. Prerequisite, Electrical Engineering 105. *Second semester; two credits.* Mr. PRICE. and laboratory instructors.

116. An advanced course dealing with the laws of electric circuits. Prerequisite, Electrical Engineering 111. *First semester; three credits.* Mr. BENNETT.

121a. Illumination and Photometry. *First semester; two credits.* Mr. KARTAK.

121b. Central Stations and Industrial Applications. *First semester; three credits.* Mr. SHUSTER.

121c. Distribution of Power and Insulation. *Second semester; three credits.* Mr. BENNETT.

121d. Electric Railways. *Second semester; three credits.* Mr. SHUSTER.

121g. Telegraphy. *First semester; two credits.* Mr. BENNETT.

122. Electrical Testing. Laboratory course in general testing of telephones, telegraph, and electrical signaling devices. Location of faults and grounds. Calibration of various types of instruments by engineering methods. Prerequisite, Electrical Engineering 103, 106, 111. *Second semester; one or two credits.* Mr. BENNETT, Mr. KARTAK.

123. Illumination and Wiring. An elective course for students who have had one semester of electrical work. *Three credits.* Mr. KARTAK.

125. Conference. Presentation and discussion of papers dealing with various phases of electrical engineering. Open to all seniors and graduates in Engineering. Once a month the class meets with the Madison section of the American Institute of Electrical Engineers. *First and second semesters; two credits.* Mr. BENNETT, Mr. DISQUE.

126. Thesis. Wide latitude is given in the choice of a thesis subject. The aim is to develop the student's initiative, originality, and perseverence by a thorough investigation of some problem in which he is interested and which requires him to vigorously exercise his abilities. The problem may be in original research, a design, a test of apparatus, library or statistical work. *Throughout the year; maximum for seniors—five credits.*

For Graduates

230. Illuminating Engineering. A course for graduates. Principles of artificial lighting. Production of light. Physics of light energy, photometric measurements. Characteristics of illuminants and design of lighting systems. *Throughout the year; three credits.* Mr. BENNETT.

231. Transmission and Distribution of Power. A graduate course dealing with the various problems of transmission and distribution circuits. *Throughout the year; three credits.* Mr. BENNETT.

232. Advanced Alternating Current Theory. A graduate course dealing with transient phenomena, traveling, and stationary waves, electromagnetic radiation, and similar related matters. The analytical work is supplemented by experimental work where possible. *Throughout the year; three credits.* Mr. BENNETT.

233. Electric Railway Engineering. An advanced course dealing with the principles underlying electric railway problems. *Second semester; three credits.* Mr. SHUSTER.

ENGINEERING CONTRACTS AND SPECIFICATIONS

PROFESSOR MEAD; MR. GARNER.

For Undergraduates

1. Engineering Contracts and Specifications. The law of contracts as applied to engineering work, including the preparation of engineering specifications. *Second semester; two credits.*

HYDRAULIC AND SANITARY ENGINEERING

PROFESSOR MEAD; ASSISTANT PROFESSOR CORP; MR. WEIDNER, MR. GARNER.

For Undergraduates

1. Hydraulics. The elementary principles of the mechanics of fluids and the theory, calibration, and use of instruments for hydraulic measurements. Recitations, lectures, and laboratory work. Prerequisite, Mechanics 1, 2. *Repeated each semester; three credits.* Mr. CORP, Mr. WEIDNER.
2. Hydraulics. Similar to course 1 but having additional recitation and laboratory work. Required of junior civil engineering students. Prerequisite, Mechanics 1, 2. *Repeated each semester; four credits.* Mr. CORP, Mr. WEIDNER.

For Undergraduates and Graduates

102. Testing of Hydraulic Machines. A course designed to acquaint the student with the methods of hydraulic machine testing. Tests are made of impulse and turbine water wheels, centrifugal and reciprocating pumps, hydraulic ram, etc. Laboratory work with occasional lectures. Prerequisite, Hydraulic Engineering 1. *First semester; two credits.* Mr. CORP.
103. Experimental Hydraulics. Laboratory investigation of the relation of experimental results to the theory of hydraulic machinery and of the flow of water under various conditions. The special field to be studied may be selected by the student with approval of the instructor.

Prerequisite, Hydraulic Engineering 1. *Repeated each semester.* Mr. MEAD, Mr. CORP, Mr. WEIDNER.

104. Water Power Engineering. The theory, investigation, and development of water power. Prerequisite, course 1. *First semester; three credits.* Mr. MEAD, Mr. GARNER.

105. Hydraulic Machinery. The theory of hydraulic motors, pumps, etc., and their economic selection and installation. Prerequisite, Hydraulic Engineering 1. *Second semester; two credits.* Mr. MEAD, Mr. GARNER.

110. Hydrology. Water in its physical, geological, and meteorological relations as applied to water power, water supply, irrigation, drainage, and sanitary work. *Second semester; three credits.* Mr. MEAD, Mr. GARNER.

111. Water Supply Engineering. Theory, development, and improvement of water supplies for domestic, manufacturing, and fire service. Prerequisite, Hydraulic Engineering 1. *First semester; three credits.* Mr. MEAD, Mr. GARNER.

112. Sewerage, Drainage, and Irrigation. Theory and practice of sanitary and agricultural drainage, sewage disposal and application of sewage and water to irrigation of land. Prerequisite, Hydraulic Engineering 1. *Second semester; three credits.* Mr. MEAD, Mr. CORP, Mr. GARNER.

113. Hydraulic Design. First semester: Investigation of water supply for power, irrigation or municipal purposes. Second semester: Design of various features of hydraulic work or sanitary work. Four hours per week in drafting room. Prerequisite, first semester, Hydraulic Engineering 1, 110; second semester, Hydraulic Engineering 1, 110, 113, and 104, 111, or 112. *Two credits each semester.* Mr. MEAD, Mr. GARNER.

114. Rivers and Canals. Theory and practice of improvements of internal waterways and harbors. Prerequisite, Hydraulic Engineering 1. *Second semester; one credit.* Mr. MEAD, Mr. GARNER.

Thesis. (a) Students taking experimental work for a thesis subject should fulfill the requirements of course 103.

(b) Students taking the design of hydraulic or sanitary works for a thesis subject should fulfill the requirements of course 113.

MACHINE DESIGN

PROFESSOR MACK; ASSISTANT PROFESSOR KEOWN; MR. READ, MR. HYLAND.

For Undergraduates

1. Mechanism. The relative motions of machine parts including linkages, cams, toothed gears, belting, chains, and ratchets. Prerequisite, Mechanical Drawing 1, 2. *Repeated each semester; four credits.* Mr. KEOWN, Mr. HYLAND.
2. Valve Gears. A short course treating of the simple slide valve, automatic valves, and some of the reversing valves, including the Stephenson and Walschaert, together with methods of laying them out by using the Bilgram, Reuleaux or Zeuner diagrams. *Second semester; one credit.* Mr. KEOWN, Mr. HYLAND.
3. Machine Elements for Mechanical Engineering. A study of the application of the principles of mechanics and empirical methods to the design of machine elements. Commercial drafting room practice. Prerequisites, Machine Design 1, Mechanics 1, 2. *Repeated each semester; four credits.* Mr. MACK, Mr. READ, Mr. HYLAND.
4. Advanced Machine Design for Mechanical Engineering. A continuation of course 3 applied to the design of complete machines. Prerequisite, Machine Design 3. *Repeated each semester; four credits.* Mr. MACK, Mr. READ, Mr. HYLAND.
5. Machine Elements for Electrical and Chemical Engineering. A study of mathematical and empirical methods for the design of machine parts, with a parallel drafting course conforming to the requirements of modern drafting practice. Prerequisite, Machine Design 1, Mechanics 1, 2. *Repeated each semester; three credits.* Mr. MACK.
6. Advanced Machine Design for Electrical Engineering. A course similar to 4, except that amount of work is reduced. Prerequisite, Machine Design 5. *Repeated each semester; two credits.* Mr. MACK.

7. Advanced Machine Design for Chemical Engineering. The design of pumping, filtration, sugar, oil and other machinery used in engineering industries. Prerequisite, Machine Design 5. *Second semester; two credits.* Mr. MACK.
8. Patent Office Drawing. A course giving practice in the preparation of drawings required by the U. S. Patent Office. Prerequisite, Mechanical Drawing 1, 2. *Either semester; one credit. Time arranged upon consultation.* Mr. MACK.
11. Laboratory course. Experimental determinations of the strength of machine elements and the efficiency of machines. *First semester; one credit.* Mr. READ, Mr. HYLAND.
12. Continuation of course 11. *Second semester; one credit.* Mr. READ, Mr. HYLAND.

For Undergraduates and Graduates

109. Machine Design. Design of special and automatic machinery, jigs, and fixtures. Prerequisite, Machine Design 4 or 6. *Second semester; two credits.* Mr. MACK.
110. Logging and Wood Working Machinery. Methods and machinery used in logging, wood working machinery and manufacturing processes, and the design of wood working plants. Prerequisite, Machine Design 3 or 5. *Second semester; two credits.* Mr. KEOWN.

Mechanical Engineering Seminary

This seminary, which is open to all seniors, gives opportunity for the study and discussion of engineering and industrial problems which are not included in other courses. Papers prepared by members of the seminary are read and discussed at the meetings. *Second semester; one two-hour period per week; one credit.* Mr. MACK.

MECHANICS

PROFESSOR MAURER; ASSISTANT PROFESSORS KOMMERS, WITHEY; MR. JOHNSON, MR. PULVER, MR. ROARK.

For Undergraduates

1. Statics. Prerequisite, physics 51, and student must be taking or have completed Mathematics 105. *First ten weeks of each semester; three credits.*
2. Dynamics. Prerequisite, Mechanics 1. *Last eight weeks of each semester; two credits.*
3. Mechanics of Materials. Prerequisite, Mechanics 1. *Each semester; five credits.*

51, 52, 53. Materials of Construction. Principally laboratory work; assigned readings and reports; also preparation and manufacture of materials. Students must be taking, or have completed, Mechanics 3.

51, for civil engineering students.

52, continuation of 51.

53, for all engineering students, excepting civil.

Courses 51, 52, 53 *given each semester; two credits.*

For Undergraduates and Graduates

105. Aeronautics. Principally mechanics of the aeroplane, and study of published laboratory researches on the subject. *Second semester; two credits.* MR. MAURER.

106. Advanced Mechanics of Materials. Inertia circle and ellipse; kern; beam of unsymmetrical section; curved beams; flat plates; thick cylinders, etc. Prerequisite, Mechanics 2, 3. *First semester; two credits.* MR. MAURER.

107. Advanced Technical Mechanics. Elaboration of course 4 with applications especially to harmonic motion, vibrations and balancing of machines, whirling shafts and rotating discs; dynamical stability, as of flying machines. Prerequisites, Mechanics 1, 4. *Second semester; two credits.* MR. MAURER.

108. Materials of Construction. Laboratory research on the various materials. Prerequisite, Mechanics 51 or 53. *Second semester; two or more credits.* MR. WITHEY.

109. Graphics. Development of principles of graphic computation, and construction of graphic charts. Application is made to various engineering problems, including representation of experimental data. Prerequisite, Mechanics 1, 2, 3. *Second semester; two credits.*

110. Thesis. The materials laboratory is well equipped to furnish thesis work; eight to ten researches on the various materials of construction can be directed each year. For timber tests the equipment of the National Forest Products Laboratory, located on the campus, is also available. Prerequisite, Mechanics 51 or 53.

MINING AND METALLURGY

PROFESSORS HOLDEN, MCCAFFERY; MR. KENNEDY, AND ASSISTANTS.

For Undergraduates and Graduates

101. Excavation. Earth and rock excavation, dredging, explosives, drilling and blasting, quarrying, plants, methods, and costs. Prerequisite, General Physics. *First semester; three credits.* Mr. HOLDEN.

102. Tunneling, Boring and Shaft Sinking. Methods of driving, ventilating and maintaining railway and other tunnels, Methods of deep drilling and core boring. Shaft sinking and maintenance in easy and difficult ground. *Second semester; three credits.* Mr. HOLDEN.

103. Prospecting, Development, and Exploitation. Mining geology as affecting exploration. Methods of prospecting, exploring, developing and mining ore bodies, placers, coal, and other minerals. *First semester; three credits.* Mr. HOLDEN.

105. Mine Engineering. The design, installation, and operation of drainage, ventilating, lighting, haulage, and hoisting systems in mines; surface plant; accidents and their prevention; sampling, valuation, and reports. Prerequisite, Mining 102. *Throughout the year; two credits each semester.* Mr. HOLDEN, Mr. KENNEDY.

107. Ore Dressing and Coal Washing. Principles and practice of ore dressing. Design of concentrating plants, coal breakers, and washers. Lectures and laboratory practice. Prerequisite, Geology 6. *Second semester; three or four credits.* Mr. HOLDEN, Mr. KENNEDY.

109. Mine and Smelter Accounts. *First semester; one credit* Mr. MCCAFFERY.

110. Summer Mining Trip. Required of junior or senior mining students in alternate years to important western mining districts to study field conditions and practice, and including at least one month of paid underground work. The next summer session in 1915 will be in Utah and Nevada, also visiting the San Francisco Panama exposition.

121. Assaying. Lectures and laboratory practice in the assaying of ores, matte, bullion, slag, and metallurgical by-products. One lecture and four to eight hours of laboratory every week. Prerequisite, Chemistry 11. *Repeated each semester; two or three credits.* Mr. KENNEDY and assistants.

122. General Metallurgy. The principles of metallurgy including the applications of chemistry in and the mechanical equipment of general metallurgical practice. Three hours of lectures weekly. Prerequisite, Chemistry 11. *First semester; three credits.* Mr. MCCAFFERY.

123. The Metallurgy of Copper and Lead. Prerequisite, Mining 122 or satisfactory course in principles of General or Physical Chemistry. *Second semester; three credits.* Mr. MCCAFFERY.

124. The Metallurgy of Iron and Steel. *First semester; two or three credits.* Mr. MCCAFFERY.

125. Metallurgy of the Minor Metals. *Second semester; three credits.* Mr. MCCAFFERY.

126. Clays and Clay Testing. Lectures and laboratory work. First semester; two credits. Mr. MCCAFFERY, Mr. KENNEDY. (For other courses on ceramics see Manual Arts 14.)

For Graduates

208. Gold and Silver Milling and Cyanidation. Stamp-milling, fine grinding, and amalgamation processes. Cyanidation,

methods of dissolving and recovering the precious metals. Prerequisite, General Chemistry. *Second semester; one or two credits.* Mr. HOLDEN.

225. Metallurgical Laboratory. Special courses of two to four credits. *First or second semester; two credits.* Mr. MCCAFFERY.

RAILWAY ENGINEERING

PROFESSOR PENCE; ASSISTANT PROFESSORS VAN HAGAN, KINGMAN; Mr. HOPKINS.

For Undergraduates

1. Railway Curves. An introductory course in the computation and field location of simple, compound, and spiral curves. Prerequisite, Mathematics 102; Topographic Engineering 1, 2. *Repeated each semester; two credits.* Mr. HOPKINS.

2a. Railway Location and Construction. The theory of field and office work necessary to survey and construct a new railway line and to improve or reconstruct an old one. Prerequisite, Railway Engineering 1. *First semester; two credits.* Mr. PENCE. (Given 1913–14 by Mr. VAN HAGAN.)

2b. Practice in Field and Office Work. To be taken only in connection with course 2a. *First semester; three credits.* Mr. VAN HAGAN, Mr. KINGMAN, Mr. HOPKINS and assistant.

For Undergraduates and Graduates

103. Railway Maintenance. A course in railway maintenance. Prerequisite, Railway Engineering 1, 2a, 2b. *Second semester; two credits.* Mr. PENCE. (Given 1913–14 by Mr. VAN HAGAN.)

104. Railway Engineering. A brief course in railway location and construction. Primarily for students in Electrical and Mining Engineering who have previously had prac-

tice in surveying. Prerequisite, Mathematics 102 (trigonometry). *First semester; two credits.* Mr. KINGMAN.

105. Railway Economics. The economics of railway location and improvements; dealing with train resistance, momentum grades, tonnage ratings, and related matters. Prerequisite, courses 1, 2a, 2b. Elective for junior and senior civil engineers. *Repeated each semester; two credits.* Mr. PENCE. (Given 1913–14 by Mr. VAN HAGAN.)

106. Railway Design. A course in the design of frogs, switches, yard layouts and minor railway structures, with field work in yard resurveys, staking out structures, etc. Prerequisite, Railway Engineering 1, 2a, 2b. Elective for junior and senior civil engineers. *Second semester; two credits.* Mr. KINGMAN, Mr. HOPKINS.

107. Advanced Railway Design. An elective course for seniors and graduate students. The work consists of special problems of an advanced nature, relating to the construction and maintenance of railways. *Repeated each semester; two credits.* Mr. VAN HAGAN, Mr. KINGMAN.

108. Signaling and Interlocking. A brief course in railway signaling and train control, including field inspections of interlocking plants and problems in design. Prerequisite, Railway Engineering 1, 2a, 2b. Elective for junior and senior civil engineers. *Second semester; one credit.* Mr. VAN HAGAN and special lecturers.

110. Masonry Construction. Theory governing the design of masonry structures. Prerequisite, Mechanics 1, 2. *Second semester; two credits.* Mr. KINGMAN.

111. Substructures. Ordinary and deep foundation work; lectures and problems. Prerequisite, Railway Engineering 110. *Second semester; one credit.* Mr. VAN HAGAN.

112. Estimates and Valuations. The methods of valuing railway and public utilities properties. In connection with the work of the engineering staff of the Wisconsin Railroad and Tax Commission. For senior and graduate students. *Repeated each semester; two or more credits.* Mr. PENCE. (Given 1913–14 by Mr. VAN HAGAN.)

Thesis. (a) Location projects; (b) Design problems; (c) State Commission work; (d) Experimental work; (e) Investigations and library studies.

ROADS AND PAVEMENTS

ASSOCIATE PROFESSOR SMITH; MR. MANN.

For Undergraduates and Graduates

General Geology. As a preparation for the special courses in Highway Engineering, Civil Engineering students are advised to take at least a short course in general and economic geology. This course should include as much field examination as possible.

101. Roads and Pavements. A course on the construction, maintenance, and administration of earth and gravel roads, designed especially for agricultural students. *First semester; one credit.* Professor SMITH.

102. Roads and Pavements. Economics and design of roads and pavements. This is an introductory course. The text, Blanchard's "Highway Engineering," will form the basis of the instruction, but library work, reports and theme writing on assigned subjects are also required. Topics covered are History of Roads and Pavements; Economics of Highway Engineering; preliminary investigations, traffic census, drainage, foundations, general design of roads and streets, hygienic aspect of dust, cleaning city streets, effect of various kinds of vehicles on roads, etc., bituminous surfaces and bituminous pavements, macadam, brick, stone, wood block and cement pavements. *Given each semester. First semester; M., Th.*, 8. Room 105, Engineering Building. Mr. SMITH.

103. Roads and Pavements. Advanced course. Special and detail study is made of the most important problems involved in the construction and maintenance of roads and pavements. Inspection trips are made to neighboring cities. Each student prepares a design and estimate of cost of some road or street based upon a survey or a topographic map furnished him. Prerequisite, Roads and Pavements 101 or its equivalent. *Given each semester; first semester; W., F.*, 8. Mr. SMITH.

104. Roads and Pavements. This course will consist of laboratory work on testing road material both in the chemical engineering and pavement laboratories. *Second semester; two credits; hours to be arranged.* Mr. SMITH, Mr. MANN.

See Structural Engineering Department for course in Highway Bridges.

SHOP WORK

SUPERINTENDENT GODDARD; MR. CHISHOLM, MR. DABNEY, MR. PAYTON, MR. SCHUMANN, MR. SLADKY, MR. ZURIAN.

For Undergraduates

1. Elementary Pattern Making. Bench and lathe work in wood. Molding and core making. *Repeated each semester; one credit.* Mr. CHISHOLM.
2. Bench Work in Iron. Instruction in the use of chisel, file, and scraper. *Repeated each semester; one-half credit.* Mr. DABNEY, Mr. SLADKY.
3. Elementary Forge Work. Forging, welding, tempering, and brazing. *Repeated each semester; one-half credit.* Mr. SCHUMANN, Mr. ZURIAN.
4. Lathe Work in Metals. Turning, boring, and thread cutting. *Repeated each semester; one credit.* Mr. DABNEY, Mr. SLADKY.
5. Planing and Milling. Surfacing, slotting, and gear cutting. *Repeated each semester; one credit.* Mr. DABNEY, Mr. SLADKY.
6. Tool Making. Making and tempering taps, reamers, counter-bores, turret lathe tools, etc. Prerequisite, Shop Work 4, 5. *Repeated each semester; two credits.* Mr. DABNEY, Mr. SLADKY.
7. General Shop Work. Building machines, gas engines, etc. Turret lathe practice. Prerequisite, Shop Work 4, 5. *Repeated each semester; three credits.* Mr. DABNEY, Mr. SLADKY.

8. Heat Treatment of Steel. Annealing, hardening, tempering, case hardening. Heat treatment of open hearth and crucible tool steels, steel castings and high speed steel with investigation of effects upon the physical properties of the material. Prerequisite, Shop Work 3. *Second semester; one credit.* Mr. GODDARD, Mr. SCHUMANN.

9. Advanced Pattern Making and Foundry Practice. Building up of large patterns and core boxes, sweeping and molding in sand and loam. Care of cupola. Prerequisite, Shop Work 1. *Second semester; one credit.* Mr. CHISHOLM, Mr. PAYTON.

10. Industrial Practice for Mechanical Engineering Course. Not less than seven weeks of work, performed outside of the University, preferably under a well-developed system of methods and discipline. Where necessary, equivalent credit may be secured by substituting four weeks of vacation shop work in University Shops. *Four credits.*

11. Industrial Practice for Electrical Engineering Course. Not less than four weeks of work, performed outside of the University, preferably under a well-developed system of methods and discipline. Where necessary, equivalent credit may be obtained by substituting two weeks of vacation shop work in University Shops. *Two credits.*

12. Manufacturing Methods. Lectures on shop methods and conditions governing choice of operations and tools. *First semester; one credit.* Mr. GODDARD.

Required in Mechanical Engineering Course, Nos. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10. Total, 16 credits.

Required in Electrical Engineering Course, Nos. 1, 2, 3, 4, 5, 6, 11. Total, 8 credits.

STEAM AND GAS ENGINEERING

PROFESSOR THORKELSON; ASSOCIATE PROFESSOR CHRISTIE; MR. BLACK, MR. BERGGREN, MR. DU PRIEST.

For Undergraduates

1. Elementary Thermodynamics. A study of perfect gases and vapors as applied to the study of compressed air, gas engines, steam engines, steam turbines, and boilers, followed by a detailed study of fuels, the principles of combustion, boilers, auxiliaries, and engines. Prerequisite, Physics 51, 52; Mathematics 104, 105. *First semester; four credits.* Mr. THORKELSON.
2. Continuation of Course 1, including a detailed analysis of the efficiency and economy of various types of steam engines, steam turbines and gas engines. *Second semester; four credits.* Mr. THORKELSON.
3. Special Course in Thermodynamics. An abbreviated course in the theory and principles underlying heat engines. Similar to Course 1 required of junior electrical chemical and mining engineers. Prerequisite, Physics 51, 52; Mathematics 104, 105. *First semester; three credits.* Mr. BERGGREN, Mr. DU PRIEST.
4. Continuation of Course 3 and similar to Course 2. *Second semester; three credits.* Mr. BERGGREN, Mr. DU PRIEST.
7. Course in Steam Engineering for Civil Engineers. An informational course covering the more important types of engines and boilers. Prerequisite, Physics 51, 52; Mathematics 104, 105. *Second semester; two credits.* Mr. BLACK.

LABORATORY COURSES

22. Engineering Testing, including the determination of the efficiencies, losses and characteristics of simple heat engines. Gas and fuel analysis. *Second semester; one credit.*
23. Continuation of Course 22 covering more complex types of heat engines including air compressors, refrigeration machinery, gas producers and engines, superheated steam,

steam turbines, boiler plants, and other power plants. *First semester; two credits.*

25. Engineering Testing, including calibration of instruments, adjustment and testing of simple heat engines. *Second semester; two credits.*

26. Continuation of Course 25 dealing with adjustment operation and efficiency tests of heat engines of various classes, and including boiler and power plant tests. *First semester; one credit.*

28. Elementary Steam Laboratory. Calibration of instruments and the determination of the efficiencies, losses, and characteristics of simple heat engines, and turbines including internal combustion engines. *Second semester; two credits.*

29. Testing of Heat Engines. Continuation of Course 28 covering more complex types of heat engines including air compressor, refrigeration machinery, gas producers and engines, superheated steam, boiler plants and other tests. Gas and fuel analysis. *First semester; two credits.*

For Undergraduates and Graduates

105. Steam and Gas Engine Calculations. A course devoted to the calculations used and problems met in determining sizes and the more important details of steam engines, turbines, boilers, gas engines, producers, etc. Problems are assigned and discussed, and solved in the drawing room. Prerequisite, Steam and Gas Engineering 1, 2 or 3, 4. *First semester; two credits.* Mr. CHRISTIE.

108. Heating, Ventilation, and Refrigeration. Elective study open to students who have completed courses 1, 2, or 3 and 4. Principles and theory of heating, ventilating and refrigerating apparatus are studied together with commercial design problems. *First semester; three credits.* Mr. BLACK.

109. Internal Combustion Engines. An elective study open to all students who have completed courses 1 and 2, or 3 and 4. This study covers the theory and design of gas and gasoline engines, gas producers, and such details as the carburetor, governor, ignition device, etc. *Second semester; two credits.* Mr. DU PRIEST.

111. Compressed Air and its Appliances. An elective study open to students who have completed courses 1 and 2, or 3 and 4 or 7, and devoted to the theory and principles governing the economical production and various applications of compressed air. *Second semester; two credits.* Mr. BERGGREN.

112. Steam Turbines. An elective study open to students who have completed courses 1 and 2 or 3 and 4. Lectures and drawing room work on the theory and design of the principal types of steam turbines. *First semester; two credits.* Mr. CHRISTIE.

LABORATORY COURSES

124. Advanced engineering testing consisting of special tests of heat engines, transmission machinery, heating and ventilating installations, power plant, and other commercial tests. *Second semester; one credit.*

127. Abridged Course. Calibration of instruments, adjustment, operation, determination of losses and efficiencies of heat engines, including the principal types of steam and internal combustion engines and including power plant tests. *First semester, one credit; continuing in second semester, one credit.*

130. Advanced Laboratory Work. Advanced courses are offered in various lines of experimental work. Stress is laid on original research and investigation. Credit and hours to be arranged according to work taken. Open throughout the year to graduate students, and to other students upon arrangement with their advisers and with the department.

STRUCTURAL ENGINEERING

PROFESSOR TURNEAURE; ASSISTANT PROFESSOR KINNE; MR. GLAETTLI; MR. SCHWADA.

For Undergraduates

2. Bridge Stresses. Simple Structures. Analysis of simple bridge and roof trusses by algebraic and graphical methods. Prerequisite, Mechanics 1, 2. *Second semester; four credits.* Mr. KINNE, Mr. GLAETTLI.

3. Bridge Design. Roof Trusses and Plate Girders. Design, detail drawings, and estimates of cost and weight of roof trusses and railway plate girder bridges. Prerequisite, Structural Engineering 2. *First semester; four credits.* Mr. KINNE, Mr. GLAETTLI, Mr. SCHWADA.

4. Bridge Design. Railway Bridge Trusses. Design, stress sheet, general drawing, and estimates of cost and weight of riveted and pin-connected railway bridge trusses. Prerequisite, Structural Engineering 2, 3. *Second semester; three credits.* Mr. KINNE, Mr. GLAETTLI.

10. Structural Design. A short general course in the designing of roofs and buildings. For students in mechanical, electrical, and mining engineering. Prerequisite, Mechanics 1, 2. *Second semester; two credits.* Mr. KINNE, Mr. SCHWADA.

For Undergraduates and Graduates

105. Reinforced Concrete. Principles of reinforced concrete construction; analysis and problems in design. Elective for graduates. Prerequisite, Mechanics 1, 2. *First semester; two credits.* Mr. TURNEAURE, Mr. GLAETTLI, Mr. SCHWADA.

106. Reinforced Concrete. Design and analysis of reinforced concrete arches. Prerequisite, Mechanics 1 and 2. Elective. *First semester; one drafting period; four hours; two credits.* Mr. GLAETTLI, Mr. SCHWADA.

107. Bridge Stresses. Statically Indeterminate Structures. Analysis of swing, cantilever, arch and suspension bridges. Elective for senior civil engineers and graduates in civil

engineering. Prerequisite, Structural Engineering 2. *First semester; two credits.* Mr. KINNE.

108. Bridge Stresses. Advanced Theory and Experimental Work. Secondary Stresses in framed structures. Tests on bridges under moving loads. Elective for senior civil engineers and graduates in civil engineering. Prerequisite, Structural Engineering 2, 107. *Second semester; two credits.* Mr. TURNEAURE.

109. Bridge Design. Swing Bridges. Design of truss, turntable and machinery for railway swing bridges. Elective for senior civil engineers and graduates in civil engineering. Prerequisite, Structural Engineering 2, 3, 4, 107. *Second semester; two credits.* Mr. KINNE.

111. Reinforced Concrete. Analysis and problems in design. A continuation of Structural Engineering 105. Two two-hour computing periods. Prerequisite, Structural Engineering 105. *Second semester; two credits.* Mr. TURNEAURE, Mr. GLAETTLI, Mr. SCHWADA.

112. Highway Bridges and Culverts. Design and analysis of highway bridges and culverts. Elective for senior civil engineers and graduates in civil engineering. Prerequisite, Structural Engineering 2, 3, 4, 105. *Second semester; two credits.* Mr. KINNE.

TOPOGRAPHIC AND GEODETIC ENGINEERING

ASSOCIATE PROFESSOR SMITH; MR. OWEN, MR. MORRIS, MR. WISKOCIL.

For Undergraduates

1. Elementary Surveying. Chaining, compass and level work. The necessary office work of platting the field notes will follow the completion of the field work. Text, Johnson and Smith's Surveying. *First semester; two credits.* Mr. OWEN, Mr. MORRIS.

2. Elementary Surveying. A continuation of course 1, and includes the field and office work of a variety of practical problems in the adjustment and use of the engineer's

level and transit. *Second semester; two credits.* Mr. OWEN, Mr. MORRIS.

3. Land Surveying, consists in the use of the Engineer's transit, solar transit sextant and plane table in land surveying. Special emphasis is placed on methods of computation and arrangement of data. The necessary office work of platting the field notes will follow the field work and some practice will be given in mapping and topographic drawing. Prerequisite, Topographic Engineering 2. *First semester; four credits.* Mr. OWEN, Mr. MORRIS.

4. Advanced Surveying. A continuation of course 3, and includes a study of the higher instruments of precision, and their use in topographic, city, hydrographic, and mining surveys. Prerequisite, Topographic Engineering 2, 3. *Second semester; three credits.* Mr. OWEN, Mr. MORRIS.

For Undergraduates and Graduates

105. Geodesy. A general treatment of the adjustment and use of theodolites and precise levels in geodetic and astronomic surveys. Computations for the adjustment of a quadrilateral, latitude and longitude, etc. are based on the field work in course 106. (Discussion of the figure of the earth.) Prerequisite, Topographic Engineering 3, 4. *Second semester; two or three credits including field work.* Mr. SMITH.

106. Summer School of Surveying at Devil's Lake, Wis. Field work for illustrating courses 4 and 105. Each year a portion of the region in the vicinity of Devil's Lake, Wisconsin, will be covered by an accurate triangulation, and also by topographic and hydrographic surveys. Survey begins on Thursday of examination week and continues for four weeks. Prerequisite, Topographic Engineering 3, 4. Mr. SMITH, Mr. MORRIS, Mr. WISKOCIL.

107. Advanced Geodesy. Lectures, assigned readings and field work. Discussion of size and figure of the earth. Prerequisite, Topographic Engineering 105. *First semester; two credits.* Mr. SMITH.

108. Short Course. Planned to meet the demands of Mechanical Engineering and Electrical Engineering students for a general study of the subject, including the use of both transit and level. *Repeated each semester; three credits.* Mr. Owen, Mr. Morris.

109. Rapid Topography. Adapted for training topographers for the United States Geological Survey. Use of the plane table and aneroid barometer in sketching topography. *Second semester; two credits.* Mr. Morris.

110. Mining Surveying. Field and office work for an underground survey of the system of University tunnels and other assigned mining problems. Prerequisite, Topographic Engineering 4. *Two credits.* Mr. Owen.

111. City Planning. Topographic and Cadastral, lectures, assigned readings on organization of a city engineer's office, street design and survey, city design for transportation, grouping of buildings, parks and boulevards, etc. The course will be illustrated by an excellent collection of slides, photographs and city plans showing both American and European practice. *Second semester; two credits.* Mr. Smith.

WOOD TECHNOLOGY

Mr. Weiss, Mr. Betts, Mr. Bateman, Mr. Palmer, Mr. Surface, Mr. Teasdale.

For Undergraduates and Graduates

102. This is a course of thirty lectures upon the technical problems of wood utilization. The lectures not only describe commercial processes and facts already known in the industries but information obtained from the recent research work of the Forest Products Laboratory is made available for the student. The course offers an unusual opportunity to students who expect to engage in industries handling wood or wood products. The resources of the Forest Products Laboratory are available to students desiring to carry an extra research work or to specialize in any subject.

The microscopic structure and the identification of species of wood. Mr. TIEMANN.

The seasoning of wood: Principles of air seasoning and kiln drying. Kiln construction and operation. Mr. TIEMANN.

The mechanical properties of wood: Strength values and grading rules. Mr. TIEMANN.

The physical properties of various species: Shrinkage, density, penetrability, fuel values, etc. Mr. TIEMANN.

Wood preservation: Destructive agencies; conditions of deterioration; preservative processes, surface application and impregnation of antiseptics by pressure; commercial plants and processes. Mr. WEISS, Mr. TEASDALE.

Pulp and paper: Commercial processes of manufacturing pulp and paper with special reference to the utilization of sawmill and lumbering waste. Mr. BETTS, Mr. SURFACE.

Wood distillation: Commercial processes and products of the distillation of wood. Chemical and physical principles underlying the operation. Mr. PALMER.

The utilization of wood waste. Mr. BATEMAN.

The naval stores industry. Mr. BATEMAN.

Second semester; two credits.

THE LAW SCHOOL

H. S. Richards, Dean, Professor of Law.

HISTORY

Plans for the organization of the Law School were formulated in 1857, but owing to lack of funds the actual organization was not effected until 1868. The instructional staff was composed of members of the Dane County bar and the judges of the supreme court.

The course of study covered but one year, and no requirements as to admission were exacted. In 1874 candidates for admission were required to pass examinations in the ordinary English branches. In 1881 the course of study was extended to two years and candidates were required to have a fair English education. In 1894 the course was extended to three years. In 1896 the requirements for admission were made the same as in the College of Letters and Science. In 1905 candidates for degrees were required to present additional credits equivalent to the freshman year of the College of Letters and Science. In 1907 the present requirements of credit equivalent to the freshman and sophomore years of the College of Letters and Science became effective. In April, 1907, the regular summer session of the Law School was established. In 1909 by act of the Legislature, the name of the College of Law was changed to Law School to conform to the uniform momenclature adopted by the Association of American Universities, which provides that the term school shall be applied to any department conferring professional or technical degrees that requires at least two years of college work as preliminary to professional study. At the time of its organization the school occupied rooms in the capitol building. It now occupies a building especially erected for its use in 1893.

OBJECT OF THE COURSE

The Law School offers a course of study covering a period of three years. It is designed to teach the fundamental principles of the English and American law in a thorough manner, and to fit the student for the active practice of the profession.

ADMISSION

Students applying to the Law School may be admitted as are students in other departments by either of two methods:—

First on certificates from accredited schools or colleges.

Second, on examination at the University.

Applicants for admission to the Law School as candidates for a degree must satisfy the general requirements of the University (see Index under Admission), and in addition, must present credits equivalent to the freshman and sophomore years in the College of Letters and Science. The above requirements may be satisfied by work done in any reputable college or university. Graduates of the regular course in the several state normal schools of Wisconsin will be admitted as candidates for a degree.

Applicants for admission who can satisfy the general entrance requirements will be admitted as unclassified students and entitled to all the privileges of the school in the way of instruction. An opportunity is thus afforded to prepare for the bar examinations in this and other states. In exceptional cases, unclassified students may become candidates for the degree. (See Requirements for Graduation.)

The examinations are conducted at the same time and by the same members of the faculty as the examination of candidates for admission to the College of Letters and Science.

In addition to the other entrance requirements, all candidates for admission to the Law School, whether graduates of accredited high schools or not, are required to take the regular entrance examination in English required for admission to the College of Letters and Science (see Index under Admission), except,

(a) Students of the university who have already passed such examination;

(b) Graduates of other approved colleges and universities. But the faculty may require any student to take additional work in English, if, in their judgment, it is necessary.

Those intending to apply for examination for admission to the first year class, or for advanced standing, should notify the Registrar of the University before the beginning of the year, and apply for directions, as examinations cannot be taken later.

Examinations for admission to the first year class will be held on June 10–11, and September 21–22, beginning at 9 o'clock.

PRE-LEGAL COURSES

The following courses approved by the Association of American Law Schools are suggested for students preparing for the study of law, where only two years are devoted to such work: English (rhetoric and composition), two years; Latin or Greek, two years; German or French, two years; mathematics, or a natural or physical science, one year; history (including English and American constitutional history), two years; psychology. If three or more years be devoted to such preparation, additional courses in history, natural science, and courses in philosophy, political science, economics, and sociology are suggested.

ADVANCED STANDING

Candidates for advanced standing who can comply with the general entrance requirements of the school as above set out will be given equivalent credit for satisfactory work done in other law schools in good standing having a three-year course, upon presenting properly authenticated certificates of such work. The right is reserved to require examinations in all cases where the credits presented are not regarded as equivalent.

Students who have been graduated from the College of Letters and Science, and who, while students in that college, have elected and earned twenty credits in the Law School, will be admitted to the second year. To meet the above requirement, the student must elect courses offered in the first year of the law course.

All persons from other universities or colleges, who intend to apply for advanced standing under the above rules should forward or present their credentials to the dean of the school at least one week before the opening of the particular session which the student desires to attend.

GRADUATION

The degree of Bachelor of Laws will be conferred upon all candidates of good character who are at least twenty-one years of age, and have complied with the following conditions:

(1) Credit for at least seventy-four credit hours with a weighted average of fair (a credit is the equivalent of one hour a week for a semester).

(2) Residence of at least three years in a law school of good standing, having a three-year course, one year of which must have been in this school.

(3) Completion of a seminar course in public and private law covering the equivalent of two hours per week for both semesters.

(4) Students completing the course with distinguished ability and presenting a thesis of unusual merit will be recommended for the degree with honor.

(5) Unclassified students who have completed at least seventy-four credits and who have been in residence for three years may, provided they have displayed unusual ability in their work, by special action of the faculty, be recommended for the degree.

(6) After July 1, 1916, there shall be required for the degree of LL. B., in addition to all existing requirements, a clerkship of not less than six months in an accredited law office. This requirement may, at the option of the student, be absolved by two periods of not less than three months each. It must be entirely absolved at a time when the student is not in attendance upon the University, and after the student shall have received credit for not less than twenty semester hours in the Law School.

Unclassified students who fail to attain a weighted average of good will not be considered.

ADMISSION TO THE BAR

The statutes of the state provide that any resident graduate of the Law Department of The University of Wisconsin shall be admitted to the bar of any court upon the presentation of his diploma, and may be admitted to the supreme court when not in

session by an order signed by one of the justices thereof and filed with the clerk. (R. S. Wis., sec. 2586.)

Under this statute and a rule of the federal court, it is customary for the graduating class, on motion of a member of the faculty, to be admitted to the supreme court of the state, and to the district and circuit courts of the United States, immediately upon graduation. This entitles them to admission to the bar of any court of record in Wisconsin and all federal courts.

Courses of Instruction

The courses of instruction are arranged to present, as far as possible, the fundamental topics of the law during the first year, and the specialized subjects during the second and third years. Unless otherwise indicated, the courses extend throughout the year.

FIRST YEAR

Common Law Pleading. Whittier's *Cases on Common Law Pleading* and Ames' *Cases on Pleading. Second semester; four credits.* Mr. Moore.

Contracts. Williston's *Cases on Contracts. Both semesters; six credits.* Mr. Richards.

Criminal Law. Beale's *Cases on Criminal Law. Both semesters; four credits.* Mr. Smith.

Persons. Paige's *Cases on Persons. Both semesters; two credits.* Mr. Jones.

Property I. Gray's *Cases on Property,* (2d ed.) Vols. I and II. *Both semesters; six credits.* Mr. Ballantine.

Torts. Ames and Smith's *Cases on Torts. First semester; four credits.* Mr. Lorenzen.

SECOND AND THIRD YEAR SUBJECTS

Administrative Law I. *Officers and Elections.* Selected Cases and Goodnow's *Cases on the Law of Public Officers. First semester; two credits.* Mr. Hall.

Administrative Law II. The Law Governing Administrative Action. Freund's *Cases on Administrative Law. Second semester; two credits.* Mr. Hall.

ADMINISTRATIVE LAW III. The Law of Taxation. Goodnow's *Cases on Taxation.* (Omitted 1913–14.)

ADMINISTRATIVE LAW IV. Municipal Corporations. *Selected Cases* and Beale's *Cases on Municipal Corporations.* (Omitted 1913–14.)

AGENCY. Wambaugh's *Cases on Agency. Second semester; two credits.* Mr. BALLANTINE.

BANKRUPTCY. Williston's *Cases on Bankruptcy.* (Omitted 1913–14.)

BILLS OF EXCHANGE AND PROMISSORY NOTES. Smith and Moore's *Cases on Bills and Notes. First semester; four credits.* MR. MOORE.

CODE PLEADING. Hinton's *Cases on Code Pleading. Both semesters; four credits.* Mr. BOESEL.

CODE PRACTICE. Wisconsin Statutes and Decisions. *Both semesters; four credits.* Mr. SANBORN.

COMPARATIVE LAW. Roman Law. Lectures and Sohm Institutes. (Ledlie's Translation, 3d ed.) (Omitted 1913–14.)

CONFLICT OF LAWS. Lorenzen's *Cases on Conflict of Laws. First semester; four credits.* MR. LORENZEN.

CONSTITUTIONAL LAW. Thayer's *Cases on Constitutional Law. Both semesters; five credits.* MR. SMITH.

CORPORATIONS. Richards' *Cases on Corporations. Second semester; four credits.* Mr. RICHARDS.

CRIMINAL PROCEDURE. Mikell's *Cases on Criminal Procedure.* (Omitted 1913–14.)

DAMAGES. Beale's *Cases on Damages. Second semester; one credit.* Mr. RICHARDS.

EQUITY I. Ames' *Cases on Equity. First semester; three credits.* MR. SMITH.

EQUITY II. Ames' *Cases on Equity,* Vols. I and II. *Second semester; two credits.* Mr. SMITH.

EQUITY III. Ames' *Cases on Equity Jurisdiction.* (Omitted 1913–14.)

EQUITY PLEADING. Selected Cases. (Omitted 1913–14.)

EVIDENCE I. *Jones on Evidence* and selected cases. *Both semesters; two credits.* MR. JONES.

EVIDENCE II. *Jones on Evidence. Both semesters; two credits.* MR. JONES.

HISTORY OF ENGLISH AND AMERICAN LAW. Jenks' *History of English Law. Second semester; two credits.* Mr. LORENZEN.

INSURANCE. Wambaugh's *Cases on Insurance.* (Omitted 1913–14.)

INTERNATIONAL LAW. Scott's *Cases on International Law. Second semester; two credits.* MR. ZILLMER.

JURISPRUDENCE. Pound's *Readings in the History and System of the Common Law. First semester; two credits.* MR. BALLANTINE.

MORTGAGES. Wyman's *Cases on Mortgages. Second semester; two credits.* (Omitted 1913–14.)

PARTNERSHIP. Gilmore's *Cases on Partnership.* (Omitted 1913–14.)

PROPERTY II. Gray's *Cases on Property*, Vols. V and VI. *First semester; four credits.* MR. MOORE.

PROPERTY III. Acquisition of Real Estate Inter Vivos. Gray's *Cases on Property*, Vol. III. *Second semester; two credits.* MR. BALLANTINE.

PROPERTY IV. Wills and Administration. Gray's *Cases on Property*, Vol. IV. *Second semester; two credits.* MR. SMITH.

PROPERTY V. The Nature and Creation of Rights in Another's Land. Gray's *Cases on Property*, Vol. II. (Omitted 1913–14.)

PROPERTY VI. Doctrines peculiar to the Law of Real Property in Wisconsin. Statutes and selected cases. *Second semester; two credits.* MR. MOORE.

PUBLIC SERVICE COMPANIES. Wyman's *Cases on Public Service Companies* (2d ed.), Assigned Problems and Cases on Carriers. *First semester; three credits.* MR. BALLANTINE.

QUASI-CONTRACTS. Scott's *Cases on Quasi-Contracts. Second semester; three credits.* Mr. LORENZEN.

SALES. Williston's *Cases on Sales. Second semester; three credits.* MR. LORENZEN.

SURETYSHIP. Ames' *Cases on Suretyship. Second semester; two credits.* MR. MOORE.

THEORY OF LAW. Lectures and Salmond's *Jurisprudence.* (Omitted 1913–14.)

TRUSTS. Ames' *Cases on Trusts*, 2d ed. *First semester; three credits.* MR. RICHARDS.

REQUIRED AND ELECTIVE COURSES

Candidates for the degree are required to take all the subjects of the first year, twelve hours of work in the second year, and twelve hours in the third year. The work of the second and third years is elective except the courses in Jurisprudence, and in the History of Law. Required of all candidates for a degree. Second year students may elect not less than twelve nor more than fourteen hours in courses offered in the second year. Second year students who are graduates of the College of Letters and Science, and who have not completed all the courses of the first year, will be required to include such omitted courses in their list of electives. Third year students may elect not less than twelve nor more than fifteen hours in courses offered in the third year and in courses not already taken by them when second year students. No student is permitted to count more than twelve hours of work in any one semester towards the total hours required for the degree. Elections in all cases are subject to the approval of the dean.

PROCEDURE AND PRACTICE COURSES

Courses in Procedure and Practice extend throughout the last two years and comprise Common Law Pleading, two credits, Code Pleading, four credits, Equity Pleading, one credit, Code Practice, four credits, and Criminal Procedure, one credit. The purpose of the courses is to instruct the student in the principles of pleading and practice at common law and under the codes, by duplicating as far as possible the steps taken by an active practitioner in the preparation for trial of cases at law and in equity throughout the entire field of litigation. The student is required to prepare pleadings in assigned cases, and to carry a cause of action through the various steps from its inception to the final judgment. A practice court is maintained in connection with the work in code practice.

ELECTIVE STUDIES

Students of the Law School will be permitted to pursue studies in other departments of the University, but not for credit toward the law degree.

Students in the College of Letters and Science will be permitted to elect, as a part of their undergraduate course, studies in the Law School for which see Index, under Election.

EXAMINATIONS

Written examinations are held at the close of each semester, and the Summer Session.

RESOURCES OF THE LAW SCHOOL

The Law School is maintained from appropriations made for the purpose by the Regents.

By the will of the late Judge Mortimer M. Jackson, funds to the amount of $20,000 were bequeathed to the University to found and maintain a professorship of law.

LIBRARY

The library of the Law School contains 22,000 bound volumes, comprising the official reports of the various states and territories and of the United States; a complete set of English, Irish, and Canadian reports; the reporter system; the various series of selected cases, as American Decisions, American Reports, American State Reports; Lawyers' Reports Annotated; duplicates of the more important reports; complete sets of the leading law periodicals; the leading encyclopedias of law and other works of reference; a large collection of text-books, statutes, digests, etc.

Students are allowed free access to the books. The library is open each week day from 8 A. M. to 10 P. M.

For information concerning the other libraries accessible to students, see Index under Library.

ADVANTAGE OF LOCATION

Unusual facilities for observing the practice of the various courts are offered the students of the Law School, from the fact that the supreme court of the state is in session during most of the academic year, and the students have opportunity to listen to arguments by some of the ablest lawyers of the country.

Two terms of the United States district and circuit courts are held here annually, and important cases, both in law and

equity, are tried, illustrating the procedure in the federal courts.

The circuit court of Dane county holds three terms annually, giving the students opportunity to observe the details of the practice under the code system.

The municipal court of Dane county sits daily for the trial of criminal cases.

The legislature of the state holds biennial sessions.

THE UNIVERSITY

Students of the Law School may pursue studies, for which they are prepared, in other departments of the University without additional fees in so far as such studies do not interfere with their work in the Law School. Before registering in other departments, the student must obtain permission from the Dean of the Law School.

LAW CLUBS

A number of law clubs and a practice court are maintained by the students, in which questions of law are argued and decided.

FEES AND EXPENSES

All fees are payable in advance at the office of the Secretary of the Regents. (See Index under Tuition and Fees). Admission to membership in the classes is not permitted until the fees are paid. No deductions are made for absences, nor for failure to begin at the opening of the year, nor is extension of time allowed for payment of fees.

Receipts showing the payment of tuition must be filed with the dean within ten days after entry.

It is most desirable that each student should provide himself with his own textbooks and books of selected cases which are designated in the program of instruction. These books may be obtained from the University Co-operative Society at a considerable discount from the quoted prices. The books required for the first year can be obtained for about $35 and for the second and third years for about $65.

The expenses of living are moderate. (See Index under Expenses.)

Students desiring information in regard to boarding places, or general information as to expenses, should address their inquiries to the Secretary of the Regents.

A careful perusal of this general statement, it is believed, will supply all needed information; but should further inquiries as to admission, examination, etc., be necessary, they should be addressed to the Dean of the Law School, Madison, Wis.

SUMMER SESSION

The summer session established in 1907 is a regular session of the school. The courses offered are not review courses or abbreviations of the subjects presented during the regular session. The lectures are given by regular members of the faculty assisted by experienced teachers from other law schools. Full credit toward the degree in law is given for all work successfully completed. An opportunity is thus afforded to those who for any reason are unable to attend the regular session to obtain thorough and systematic legal instruction. By taking advantage of the summer sessions regular students of the school can materially shorten the calendar period of residence required for the degree.

Time of Opening

The session of 1913 begins June 22 and continues until August 28.

Courses of Instruction—1914

The subjects are arranged to give a full course (12 hours per week) to students just beginning the study of law, and a full course to students who have studied law for one or more years.

FIRST YEAR

CRIMINAL LAW. Beale's *Cases on Criminal Law. Four hours a week for ten weeks; two and two-thirds credits.* Mr. SMITH.

TORTS. Ames and Smith's *Cases on Torts. Eight hours a week for ten weeks; five and a third credits.* Mr. LORENZEN.

SECOND AND THIRD YEARS

AGENCY. Wambaugh's *Cases on Agency. Four hours a week for ten weeks; two and two-thirds credits.* Mr. RICHARDS.

EQUITY II. Ames' *Cases on Equity,* Vols. I and II. *Four hours a week for ten weeks; two and two-thirds credits.* Mr. RICHARDS.

PROPERTY III. Conveyancing. Gray's *Cases on Property,* Vol. III. *Four hours a week for ten weeks; two and two-thirds credits.* Mr. BALLANTINE.

SALES. Williston's *Cases on Sales. Four hours a week for ten weeks; two and two-thirds credits.* Mr. SMITH.

THE COLLEGE OF AGRICULTURE

H. L. Russell, Dean.

GENERAL INFORMATION

The College of Agriculture is one of the general divisions of the University and instruction in the general sciences, languages, and mathematics is given to agricultural students along with students in other colleges, but for the purely agricultural subjects separate buildings, equipment, and staff of instructors are maintained. Agricultural students enter the University with the same standing as students in other colleges and have the advantages incident to a great university such as the general laboratories, libraries, and student organizations. Aside from the purely instructional work of the College the facilities for research in agriculture afford special opportunties for both regular and advanced students to secure a knowledge of the best methods of agricultural science.

BUILDINGS

The buildings occupied by the College of Agriculture are located at the west end of Observatory Hill adjacent to the University Farm, which extends still further westward. These buildings have been erected with particular attention to the needs of the various departments which occupy them.

Agricultural Hall, a four story building, accommodates the administrative offices of the College and Experimental Station, Farmers' Institutes, and offices, lecture rooms, and laboratories for the departments of Agricultural Bacteriology, Agricultural Economics, Agricultural Education, Agricultural Journalism, Animal Husbandry, Experimental Breeding, and Veterinary Science. An auditorium, with 750 seats is provided in an octag-

onal wing. The first floor of this wing is occupied by the reading room of the agricultural library. A fire proof stackroom 29 by 44 feet to house the library has just been constructed.

Hiram Smith Hall provides facilities for the dairy department, including instructional and research work. The main structure includes three stories, 100 by 84 feet, and houses the officers, principal lecture room and laboratories for the dairy department as well as the University Creamery, pasteurizing plant, refrigerator, and cheese-making rooms.

At the rear is the Dairy Laboratory, 47 by 82 feet in size, which provides additional laboratories and lecture rooms for instruction in butter and cheese making. A large lecture room and a locker room with steel lockers are provided. A modern ammonia plant supplies both buildings with refrigeration.

In the creamery, operated by the dairy department, over 7,000,000 pounds of milk, from more than 200 farms are annually made into pasteurized milk and cream, print and package butter, and several varieties of cheese are sold in the leading dairy markets. North of the Hiram Smith Hall stands the Dairy Machinery laboratory, which includes modern equipment for instruction with dairy and creamery machinery boilers, gas and steam engines.

The Soils building, a three story brick structure with six greenhouses adjoining, provides lecture rooms and laboratories for the instruction and research work of the soils department, as well as offices and laboratories for the State Soil Survey. The greenhouses are especially equipped with improved devices for testing soils in various ways and a thoroughly equipped laboratory for soil chemistry is to be found on the first floor of the building. A tract of about 25 acres of the University Farm is controlled by the soils department for instruction and research in irrigation, drainage, and fertilizer tests.

The Horticultural building, 48 by 128 feet, includes offices, laboratories, and class rooms for the departments of Horticulture and Plant Pathology. It is provided with every modern equipment for instruction and research in these subjects. There are four greenhouses adjoining, 100 by 20 feet, and potting houses, 20 by 68 feet. The grounds of the horticultural department include some 12 acres of orchards and extensive experimental plantations.

The Agronomy building contains, besides lecture room and offices, a large grain judging room, accommodating several hundred students, thoroughly equipped laboratories for seed testing, seed inspection, grain curing and cleaning, and storage of seed grains. Portions of the University and Hill farms are used by the agronomy department for experimental work and the growth of seed grain for dissenination purposes.

The Agricultural Engineering building includes on its three floors, in addition to offices and lecture and drafting rooms, an extensive power laboratory, in which are well represented the various kinds of gasoline, steam, and electric power machinery, a large farm machine laboratory, a laboratory for smaller farm tools and implements, and a laboratory especially designed for research and instructional work with concrete.

The Agricultural Chemistry building, a three-story structure which has just been completed, furnishes excellent facilities for the instructional and research work of the department. For the instructional needs the building provides a large laboratory and an assembly room, each accommodating 400 students, in addition to special laboratories for advanced students. The chemical laboratories of the experiment station, including the laboratories of the feed and fertilizer inspection service, are also located here.

The Live Stock pavilion includes a large arena in the form of an ellipse, 66 by 164 feet, covered with tanbark, with seating arrangements for 2,500 people. This room may be divided into separate compartments by movable curtains for use by classes of students. Beneath the amphitheatre seats are 15 box stalls and 22 standing stalls for the use of horses belonging to the University Farm. In this building offices are provided for the use of the Animal Husbandry and Experimental Breeding departments and the Farm Superintendent, and also an operating room and dispensary.

The Poultry building is provided with facilities for instruction, research, and demonstration. The various buildings of the poultry plant have a capacity of several hundred fowls. Pens of all the important breeds are provided and practical instruction in all lines of poultry raising is provided. A separate research poultry plant is also maintained on an outlying portion of the University Farm.

The University Farm buildings include barns for the horses, cattle, sheep, and swine as well as two large stock-judging rooms. Modern outbuildings are provided for storing farm machinery and manure, silage, and tobacco.

FARM LANDS

The College of Agriculture is provided with two farms, the "University Farm," adjacent to the campus, including about 300 acres of tillable land, while two miles to the westward is located the "Hill Farm," including about 290 acres devoted to experiments with farm crops, fertilizers, tillage, drainage, etc. The latter farm is equipped with a modern barn and is operated to facilitate both instructional and research work in agriculture. The Eagle Heights farm, purchased in 1911, comprising about 156 acres, has been placed under the direction and at the disposal of the College of Agriculture.

LIVE STOCK

The University herds and flocks include representatives of the leading breeds of horses, cattle, sheep, swine, and poultry valued at $30,000. The principal breeds of dairy cattle, beef cattle, draft horses, swine, sheep, and poultry are represented. These animals, which are used for both instructional and research purposes, include many individuals that are well-known prize winners.

LIBRARY

The Agricultural College library includes about 13,300 bound volumes and 11,500 pamphlets distinctly agricultural in character. This library is a part of the general University library, but is kept in special quarters in Agricultural Hall so as to be readily available to students in this college. It is especially strong in the files of scientific agricultural journals, both American and foreign, and the record books of pure bred animals. A trained librarian is in attendance to assist students.

ORGANIZATIONS

Several societies, maintained by the agricultural students, meet weekly to discuss questions related to their special interests. These organizations are for drill in parliamentary

practice, training in declamation, debate, and essay writing, as well as for the discussion of scientific and practical questions along agricultural lines. The Agricultural Society holds weekly meetings to discuss general questions in agriculture. The Grafters' Club includes students particularly interested in horticulture; the Agricultural Engineers' Club, embraces those who are specially studying agricultural machinery; and a Live Stock Club is maintained to discuss the interests of various breeds of cattle. A Country Life Club discusses the social phases of rural life. A chapter of the national honorary agricultural fraternity, Alpha Zeta, in maintained by faculty and student members.

Students of the College of Agriculture, former and present, engaged in farming in Wisconsin, maintain an Agricultural Experiment Association, with a paid membership of about 1,450, for the purpose of coöperating with the College and Experiment Station in advancing the agriculture of the commonwealth. Practical experiments, planned by station officials and a committee of the association, are carried out on the farms of the members. Especial attention is given to testing promising new varieties of farm grains and forage crops and to multiplying and disseminating the desirable varieties. By means of this organization, the members of which are located in all sections of the state, the college is in close touch with the great body of Wisconsin farmers.

SPECIAL FACILITIES FOR STUDY

In the various departments of the Agricultural College special lines of research work are continually in progress, affording properly qualified students excellent opportunities to secure training of special character. Some of the leading lines of research carried on by the departments of the college are: Agricultural Chemistry—plant and animal nutrition; Agricultural Bacteriology—dairy and soil bacteriology; Agricultural Economics—farm accounting, farm management, coöperation and marketing; Agronomy—improvement of grains and forage crops; Animal Husbandry—feeding, care, and management of live stock; Dairy Husbandry—improved dairy processes and tests; Economic Entomology—eradication of insect pests; Experimental Breeding—fundamental studies in heredity; Horti-

culture—improvement and culture of fruits and truck crops; Plant Pathology—control of plant diseases; Poultry Husbandry—feeding and care of poultry; Soils—problems in soil management, fertilization, and drainage; Veterinary Science—animal diseases.

By statute the inspection of nurseries and orchards is placed in charge of the economic entomology department, the licensing of feeding stuffs is under the department of chemistry, the inspection of seeds under the agronomy department, and the enrollment of stallions under the department of horse breeding.

THE ACCREDITED FARM SYSTEM

The College of Agriculture has inaugurated a movement for the establishment of a system of accredited farms. Advanced or graduate students who have had the preparatory practical work on the farm will have an opportunity to secure more comprehensive training and experience with successful, progressive farmers.

Arrangements have been made whereby it is possible for graduates of the four-year course to arrange for special work in connection with the accredited relationship and secure an appropriate time credit not to exceed one semester's credit toward the master's degree. For further particulars address Prof. D. H. Otis, Chairman of the Committee on Accredited Farms.

PLAN OF THE COLLEGE ACTIVITIES

The work of the College of Agriculture is conducted on a three-fold basis. Each department is directly concerned:

First, to develop agricultural science through investigation and experiment.

Second, to give instruction to students at the University, and

Third, to disseminate agricultural information among the farmers of the state by means of publications, farmers' courses, institutes, and the agricultural extension service. Students in the College of Agriculture have ample opportunities to become acquainted with these three lines of work.

FEES AND EXPENSES

For tuition and fees, see Index.

The expenses of resident students in the graduate and long courses are practically the same as for those pursuing other University courses.

The expenses of resident Short Course and Dairy students will vary from $100 to $125 for the terms for room, board, washing, and necessary books.

COURSES OF INSTRUCTION

The following courses have been arranged to meet the needs of students of various classes.

The Graduate Courses offer to advanced students opportunities for professional training and original investigation, made possible through an active Experiment Station, associated with numerous scientific laboratories. The special lines of study will be left largely to the selection of the student, subject to the approval of the agricultural faculty. Students may participate in experiments in progress, and after suitable experience, conduct independent investigations. When contributions of knowledge of permanent value are made they may be published through the bulletins of the Experiment Station with proper credit to the contributor.

The Long Course offers scientific training in agricultural bacteriology, agricultural chemistry, agricultural economics, agricultural education, agricultural engineering, agricultural journalism, agronomy, animal husbandry, dairying, economic entomology, experimental breeding, forestry, horticulture, plant pathology, poultry husbandry, soils, and veterinary science.

This course also embraces general training in chemistry, physics, biology, bacteriology, and other branches which have an application in agriculture. The field is so broad, however, that it is impossible for the student in four years to pursue all the courses offered in addition to acquiring the necessary fundamental studies, and hence much liberty of selection is allowed.

The Middle Course. This course consists of two full college years. The first year embraces essentially the work of the first

year of the Long Course, with the exception of foreign language. In the second year the time is devoted very largely to elective work. Before a student is permitted to enter the second year of this course, it is necessary for him to have had at least one full year of practical farm experience. Considerable work in the basal sciences is required to lay a foundation for the distinctively agricultural work. Practical subjects may be elected during the second year.

Courses for the Training of Teachers. Graduates of the Long and Middle Courses in Agriculture, fulfilling the several special requirements of the Course for the Training of Teachers, will be entitled to receive a license to teach agriculture. (See pp. 339 and 433 of this catalogue, also Long and Middle Course Circular.

The Summer Session Courses include work in agricultural bacteriology, agricultural chemistry, agricultural economics. agricultural education, agricultural engineering, agronomy, animal husbandry, dairying, economic entomology and plant pathology, farm management, home economics, horticulture, poultry husbandry, and soils. For details see index under Summer Session.

The Short Course for two terms of fourteen weeks each is provided for those who can devote only a limited time to study, and who wish to return at once to the active operations of the farm, and therefore desire the greatest amount of directly useful knowledge that can be acquired in the brief time allowed. This course begins early in December and closes in March. An illustrated circular describing this course may be had on request to Prof. D. H. Otis, College of Agriculture, Madison, Wis.

The Forest Rangers' Course, offered in coöperation with the State Board of Forestry, covers a period of two full years. For three months, January 5 to April 14, instruction will be given at the College of Agriculture. During the next three months, field instruction will be offered on the State Forest Reserve in coöperation with the State Board of Forestry. For the balance of the field season, employment will be given to a limited number of students, selected on the basis of the progress made during the course. The course is not offered as a complete education in forestry, but aims to prepare men for the position

of ranger, guard, tree planting expert, or forest nursery foreman. A statement of the courses offered in the Rangers' Course is given under the departmental outline, p. 181. For detailed course of study and further particulars, address Prof. A. M. Cook, College of Agriculture, Madison, Wis.

The Winter Dairy Course is open to persons who have had at least six months' experience in a creamery or cheese factory and covers one term of twelve weeks, beginning about November 1. The course is designed to train creamery buttermakers and factory cheesemakers in the science and practice of their respective lines. Certificates are given to those who satisfactorily complete the full course and have worked in a creamery or cheese factory for two seasons of not less than seven months each, one of which is before and the other after the period spent in the dairy course. An illustrated circular describing this course in detail will be sent upon application to Prof. E. H. Farrington, College of Agriculture, Madison, Wis.

The Summer Dairy Course. This course is intended for beginners or those having little practical knowledge of creamery or dairy work. Students are admitted at any time during the spring and summer after March 1. They are expected to remain at least ten weeks, although they may continue the work longer, if desirable. Under the supervision of instructors, laboratory exercises and theoretical instruction are given as required.

EXTENSION COURSES GIVEN AT UNIVERSITY

The Farmers' Course in Agriculture. This is a popular course of addresses, demonstrations, and exercises covering a period of 10 days, designed to give busy farmers the most useful instruction and practice in the science of agriculture in the shortest possible time at a season when they can be away from home for a brief period. The course, beginning about the last of January, is given by the staff of the College of Agriculture assisted by other speakers. Programs may be had upon application to Professor K. L. Hatch, College of Agriculture, Madison, Wis.

The Women's Course in Home Economics. This course for one week is designed to give the women practical and helpful instruction in the various phases of home economics. The plan

of instruction includes lectures and demonstrations on such subjects as cooking, serving, and nursing. The course is held at the same time as the Farmers' Course to afford an opportunity for farmers' wives and daughters to attend. Detailed information will be furnished upon request to Prof. Abby L. Marlatt, Madison, Wis.

The One Week's School in Home Economics. A series of class-room and laboratory exercises in cookery, sewing, art and design, and textiles for women who desire more thorough instruction than can be secured in the Women's Course. For detailed program address Prof. Abby L. Marlatt, Madison, Wis.

The Special Dairy Course. This is a week's course of lectures, conferences, and demonstrations designed to meet the needs of creamery and cheese factory operators and managers and to give them advanced instruction in connection with problems of the management of their establishments as well as to inform them on recent advances in the science of dairying. The course is held at the time of the Farmers' Course. Detailed programs may be secured upon application to Prof. E. H. Farrington, College of Agriculture, Madison, Wis.

The Young People's Course in Agriculture is a week's course of lectures, demonstrations, and exercises in grain growing and judging, selection and testing of seeds and other subjects relating to farm life which are interesting to farm boys and girls. Those who have won scholarships in grain growing contests conducted by local fair authorities and the agronomy department pursue this course. The course covers one week, during the Farmers' Course. For further information address Prof. R. A. Moore, College of Agriculture, Madison, Wis.

TERMS OF ADMISSION

Graduate Courses in Agriculture.—Graduates of this University and other colleges and universities in good standing are admitted to this course without examination.

Long Course in Agriculture.—The requirements for admission to this course are given under Admission to University (see Index).

Adult Special Students in Agriculture.—For terms of admission for adult special students, see Index under Admission.

THE MIDDLE COURSE IN AGRICULTURE.—Requirements for admission are same as for Long Course.

SHORT COURSE IN AGRICULTURE.—Students in this course must be at least sixteen years of age and have a good common school education. No entrance examinations are required.

DAIRY COURSES.—The requirements for admission to the Winter Dairy Course are the same as for the Short Course excepting that the candidates must have had not less than six months' experience in a creamery or cheese factory before entering the course. For admission to the Summer and Special Courses no previous experience is required.

FARMERS' AND WOMEN'S COURSES.—No examinations are required for admission to these courses, but the candidate must be at least twenty-five years of age to be admitted to the Farmers' Course.

FELLOWSHIPS AND SCHOLARSHIPS

Two fellowships and two scholarships are offered graduate students in this college. These are granted to those candidates best fitted for the work selected. The fellowships return $400 per year each and the scholarships $225 per year each. Application for these honors must be made to the Registrar of the University on proper forms by March 1.

LOAN FUND

Students in the College of Agriculture who are short of funds, may borrow money in small amounts from a loan fund established by Albert S. Kuppenheimer, of Chicago. He has given $750, which is to be loaned to needy students at 5 per cent interest. The money is to be returned from the first available earnings of the student. This is the nucleus of a fund which will probably be increased from time to time by gifts.

DEGREES

The degree of Bachelor of Science (Agriculture) is conferred upon students who successfully complete the Long Course in Agriculture.

The degree of Bachelor of Science (Home Economics) is conferred upon those completing the long course in Home Economics.

The title of Graduate in Agriculture will be conferred upon students who complete the Middle Course in a satisfactory manner.

The degree of Master of Science is conferred upon agricultural graduates who complete at least one year of advanced study at the University and present an acceptable thesis on a topic approved by the agricultural faculty.

CERTIFICATES

Students who complete in a satisfactory manner the Short Course or Dairy Course, will be granted appropriate certificates.

OUTLINE OF LONG COURSE IN AGRICULTURE

Note.—In calculating the hours per week for the various studies, two hours of laboratory, field, or barn practice count as one hour of class room work, which is the equivalent of one credit in this outline. Required subjects outside the College of Agriculture (marked L. & S.) will be found catalogued under the College of Letters and Science.

OUTLINE OF LONG COURSE IN AGRICULTURE

Freshman Year

FIRST SEMESTER	Credits
English 1 (L. & S.)	3
German 2a (L. & S.)	4
Chemistry 1 (L. & S.)	5
Agronomy 1, first half semester, Section 1, or Agricultural Engineering 1, first half semester, Section 1	2–½
Animal Husbandry 1, last half semester	2–½
Military Drill	1
Physical Education 1	1
SECOND SEMESTER	
English 1 (L. & S.)	3
German 2b (L. & S.)	4
Chemistry 1 (L. & S.)	5
Dairy Husbandry 1, first half semester	2–½
Agricultural Engineering 1, last half of semester, Section 2, or Agronomy 1, last half semester, Section 2	2–½
Military Drill	1
Physical Education 1	1

Sophomore Year

FIRST SEMESTER

Bacteriology 1 (L. & S.)	3
Chemistry 11a (L. & S.)	3
Organic Chemistry (new course) 120	2
Botany 1 (L. & S.)	5
Horticulture 1, last half semester	2–½
Animal Husbandry 2, first half semester	2–½
Military Drill	1
Physical Education 3	1

SECOND SEMESTER

Agricultural Bacteriology 1	4
Agricultural Chemistry 1 and 2	5
Soils 1	5
Zoology 3 (L. & S.)	3
Military Drill	1
Physical Education 3	1

Junior Year

FIRST SEMESTER

Physics 1 (L. & S.)	5
Agricultural Economics I	5
Botany 129 (L. & S.)	2
Electives	5

SECOND SEMESTER

Mathematics 201 (Engineering)	5
Botany 146 (L. & S.)	4
Electives	8

Senior Year

FIRST SEMESTER

Major, including Thesis	5
Minor, assigned	5
Electives	6

SECOND SEMESTER

Major, including Thesis	5
Minor, assigned	5
Electives	6

The total requirements for graduation are 135 credits in addition to military drill and physical education.

The thesis, or a substitute approved by the adviser, must represent some phase of the student's work in his major study, four credits being given. The instructor in charge of the major subjects will act as the student's adviser and will select his minor subject.

Fourteen total elective credits may be taken outside the College of Agriculture, in addition to the minor study which may be taken outside the college. Before graduation, the student must also have had at least six months actual farm experience satisfactory to the executive office of the College of Agriculture. Students of the Long and Middle Courses may take sixteen to eighteen credits each semester, exclusive of drill and physical education. Electives may be added to make a total of twenty credits provided the student has received a standing of at least 85 per cent. in all studies for the preceding semester.

OUTLINE OF MIDDLE COURSE IN AGRICULTURE

Freshman Year

FIRST SEMESTER	Credits
English 1 (L. & S.)	3
Chemistry 1 (L. & S.)	5
Agronomy 1, first half semester	2–½
Animal Husbandry 1, last half semester	2–½
Horticulture 1, last half semester	2–½
Animal Husbandry 2, first half semester	2–½
Military Drill	1
Physical Education 1	1

SECOND SEMESTER

English 1 (L. & S.)	3
Chemistry 1 (L. & S.)	5
Dairy Husbandry 1, first half semester	2–½
Agricultural Engineering 1, last half semester	2–½
Soils 1	3
Electives in College of Agriculture	2
Military Drill	1
Physical Education 1	1

Sophomore Year

FIRST SEMESTER	Credits
Agricultural Bacteriology 2	5
Electives	11
Military Drill	1
Physical Education 3	1

SECOND SEMESTER

Agricultural Chemistry 1	3
Electives	13
Military Drill	1
Physical Education 3	1

For the amount of work which a student may carry see the preceding paragraph under Long Course.

The student shall select his major subject by the beginning of the second year and shall consult the chairman of that department for assignment to an adviser. Before entering this year, a student must have had at least one year of practical farm experience satisfactory to the executive office of the College of Agriculture. Six elective credits may be taken outside the College of Agriculture in the second year.

Students taking the Middle Course and desiring to transfer to the Long Course, must be prepared to spend more than the usual four years, in order to complete the requirements.

SPECIAL ADAPTATIONS OF THE COURSES IN AGRICULTURE FOR THE PREPARATION OF TEACHERS

Middle Course

Graduates of the Middle Course who complete the following groups of subjects during the second year will be recommended by the Director of the Course for the Training of Teachers to receive a special license to teach Agriculture in the schools of Wisconsin.

FIRST SEMESTER GROUP	Credits
Agronomy 120	3
Agricultural Engineering 2	2
Dairy Husbandry 2	3
Economic Entomology 1	3

SECOND SEMESTER GROUP	Credits
Education 1, 6, 11, 13 or 41	2
Agricultural Education 2	2
Horticulture 3	3
*Poultry 2	2
Soils 2	3
Vet. Science 2 or 3	2

*Given in second semester of first year.

Long Course

Graduates of the Long Course presenting credit in the following special work will be entitled to receive the University Teachers Certificate: Philosophy (1), three credits; Education (1, 6, 11, 13, or 41) three credits; Agricultural Education 1, two credits; Agricultural Education 2, two credits. Students expecting to become candidates for the University Teachers Certificate are advised to elect not less than fifteen credits during the junior and senior years from the following groups:

FIRST SEMESTER GROUP	SECOND SEMESTER GROUP
Agronomy 120	Horticulture 3
Agricultural Engineering 2	Poultry 2
Economic Entomology 1	Soils 2
Plant Pathology 1	Veterinary Science 2 or 3
Poultry 1	
Soils 120	

DEPARTMENTS OF INSTRUCTION

THE LONG AND MIDDLE COURSES IN AGRICULTURE

AGRICULTURAL BACTERIOLOGY

PROFESSORS HASTINGS (chairman), RAVENEL; ASSISTANT PROFESSOR FRED; MR. PRIMM, MR. SHERMAN, MR. WRIGHT.

The courses in Agricultural Bacteriology are planned to meet the needs (1) of students wishing to obtain a general idea of the relation of bacteria to agricultural processes; (2) of students intending to devote themselves to dairy husbandry, soils, or to veterinary medicine; (3) of students wishing to fit themselves for instructional or research work in general and applied bacteriology.

For Undergraduates

1. Agricultural Bacteriology. Relation of micro-organisms to soil, to dairy, to animal diseases, to food preservation and to farm sanitation. Prerequisite, course 1, General Bacteriology. *Second semester; two lectures; two laboratory periods; four credits.* Mr. HASTINGS, Mr. RAVENEL, Mr. WRIGHT, Mr. SHERMAN.
2. A general course in Agricultural Bacteriology. For Middle Course students. Prerequisite course—General Bacteriology. *Last four-fifths of first semester; three lectures; three laboratory periods; four credits.* Mr. WRIGHT, Mr. SHERMAN.

19. Thesis. A definite problem in dairy or soil bacteriology or in animal diseases. Prerequisite, course 1, and either course 121, 123, or 2 in general bacteriology. *Throughout the year; two credits.* Mr. HASTINGS, Mr. FRED, Mr. RAVENEL, Mr. WRIGHT.

For Undergraduates and Graduates

121. Dairy Bacteriology. A consideration of the relation of bacteria to market milk, butter, and cheese. Prerequisite, course 1. *First semester; one lecture; three laboratory periods; three credits.* Mr. HASTINGS, Mr. SHERMAN.

123. Soil Bacteriology. A study of the relation of bacteria to soil processes. Prerequisite, course 1. *First semester; one lecture, three laboratory periods; three credits.* Mr. FRED.

For Graduates

230. Research work in Agricultural Bacteriology. A detailed study of a definite problem in the field of agricultural bacteriology. Prerequisite, course 121 or 123 or 2 in general bacteriology. *Conferences and laboratory work; three or five credits.* Mr. FRED, Mr. HASTINGS, Mr. RAVENEL, Mr. WRIGHT.

231. Seminar in Agricultural Bacteriology. Discussion of research work of department and reports on articles of interest to the student. *Throughout the year; once every two weeks.* Mr. HASTINGS.

AGRICULTURAL CHEMISTRY

EMERITUS PROFESSOR BABCOCK, PROFESSORS HART (chairman), MCCOLLUM; ASSISTANT PROFESSOR TOTTINGHAM; MR. DRESCHER, MR. JURRJENS, MR. MORRISON, MR. NELSON, DR. PETERSON, MR. STEENBOCK.

The courses offered in this department are intended to give a broad view of farm 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 1 and 2 must precede all other courses in the department. Courses 120 to 122 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 is a desired prerequisite. All other advanced courses in this department are open to undergraduates and graduates who have had the necessary preliminary training.

For Undergraduates

1. Agricultural Chemistry. A general discussion of chemistry applied to the farm, including the chemistry of plants and animals and the processes involved in their growth. *Second semester; lectures; three credits.* Mr. HART.
2. Agricultural Analysis. Analytical chemistry applied to agricultural materials; quantitative analysis of soils, fertilizers, manures, feeding stuffs, and insecticides. *Second semester; two laboratory periods; two credits.* Mr. TOTTINGHAM, Mr. PETERSON.
3. Household Chemistry. Composition and physical properties of foods and their nutritive value; chemistry of the home. *First semester; three lectures; three laboratory periods; five credits.* Mr. PETERSON.

19. Thesis Work in Agricultural Chemistry. The thesis may be taken in plant or animal chemistry or in dairy chemistry. *Throughout the year; two credits.* Mr. HART, Mr. MCCOLLUM, Mr. TOTTINGHAM.

For Undergraduates and Graduates

120. Plant Chemistry. Select methods in the analysis of plant materials and studies of processes of growth. *Second semester; two lectures; two laboratory periods; two or five credits.* Mr. TOTTINGHAM.

121. Dairy Chemistry. Chemistry of milk and its products; including the detection and quantitative estimation of adulterants. *First semester; two lectures; two laboratory periods; two or five credits.* Mr. HART, Mr. DRESCHER.

122. Animal Chemistry. Chemistry of feeds, processes of digestion, metabolic changes involved in nutrition of animals. *First semester; two lectures; two laboratory periods; two or five credits.* Mr. MCCOLLUM, Mr. STEENBOCK.

123. Advanced Household Chemistry. Composition and fuel value of prepared cereals; proprietary infant foods; soaps and washing powders. *Second semester; one lecture; two laboratory periods; three credits.* Mr. PETERSON.

124. Advanced Bio-Chemistry. Examination of plant and animal products including the proteins, carbohydrates, fats, and enzymes involved in nutrition of plants and animals. *Either semester; laboratory work and credit by arrangement.* Mr. HART, Mr. MCCOLLUM.

125. Sugar Beet Analysis. A course intended for chemists in sugar factories. *First semester; two laboratory periods; two credits.* Mr. JURRJENS.

126. Chemistry of Fungicides and Insecticides. Lectures and laboratory exercises. A course designed for students in Plant Pathology, Horticulture, and Entomology. *First semester; credit by arrangement.* Mr. STEENBOCK.

For Graduates

230. Plant Nutrition. The influence of various fertilizers on the development and composition of plants, to include field and pot experiments. *Throughout the year; laboratory work and credit by arrangement; five credits.* Mr. HART, Mr. TOTTINGHAM.

231. Animal Nutrition. Composition and digestibility of foods and their influence on growth, production of milk, etc. *Throughout the year; laboratory work and credit by arrangement; five credits.* Mr. HART, Mr. MCCOLLUM.

232. Advanced Dairy Chemistry. The proximate analysis of milk and its products. Changes occurring in manufacture of dairy products. *Throughout the year; laboratory work and credit by arrangement.* Mr. BABCOCK, Mr. HART.

233. Seminar in Agricultural Chemistry. Original articles studied to broaden and deepen the understanding and to act as a stimulus to further research. *Throughout the year; one credit.* Mr. HART, Mr. MCCOLLUM.

AGRICULTURAL ECONOMICS

PROFESSORS HIBBARD, OTIS, TAYLOR (chairman); MR. ELLIOTT, MR. GALPIN, MR. JUVE, MR. SCHOENFELD.

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, and to the economic condition of the agricultural classes.

Students who wish to prepare themselves for practical work as farm managers and as citizens interested in agriculture will find courses 1, 8, 110, 112, and 128 adapted to their needs. The accredited farms system of the College of Agriculture affords opportunity for graduate students to secure managerial experience, also to secure one half year's credit towards a higher degree.

Students who wish to prepare for positions as teachers and research workers in the field of agricultural economics will find it desirable to elect courses 124 to 140. Such students should elect courses in the department of political economy to round out their work. Courses 5, 8, 121, 135, 251, 252, 253, 260, and 266 are available for this purpose. A Traveling Field Course in Farm Management is given in the Summer Session. This work is carried out in camp upon the properties of progressive successful farmers, and others in Wisconsin. See Summer Session Catalogue.

Students desiring to major in this department should have had at least twelve consecutive months of active experience on a farm.

For Undergraduates

1. Principles of Agricultural Economics. The outlines of economics in their application to the production and marketing of farm produce. *First semester; five credits; second semester; two credits.* MR. TAYLOR.
8. Farm Records and Accounts. Inventories, bookkeeping, and accounting as applied to farm operations. *Repeated each semester; two credits.* MR. ELLIOTT.
19. Thesis Work. *Throughout the year; two credits.* MR. TAYLOR, MR. HIBBARD, MR. OTIS, MR. GALPIN.

For Undergraduates and Graduates

110. Methods of Farm Management. A study of farm methods as applied to business management on the farm. Visits to farms are made the basis of laboratory work. *Second semester; three credits.* Mr. Otis.

112. Rural Life. A study of the country life movement and of the social problems of farm and village. *First semester; two credits.* Mr. Galpin.

124. The Premises of Agricultural Economics. The fundamentals of economics in their application to agricultural problems. Recent works in English, German, and French will be used. Given alternate years. *First semester; two credits.* Mr. Taylor.

126. Land Tenure. An historical and comparative study of the economic status of the agricultural classes with especial reference to the relations of landlord and tenant. Given alternate years. *Second semester; two credits.* Mr. Taylor.

127. Economic History of Agriculture. A study of agriculture explaining historical changes and geographical differences in methods of farming. *Second semester; two credits.* Mr. Hibbard.

128. Coöperation and Marketing. A study of farmers' organizations with special reference to coöperative credit and marketing. *Second semester; three credits.* Mr. Hibbard.

135. Cost Accounting. A study of systems of cost accounting in their application to the problems of farm organization and operation. *Second semester; two credits.* Mr. Elliott.

140. Methods and Problems. Advanced students may do research work on the economic problems related to agriculture and rural life. *Throughout the year; credits to be arranged.* Mr. Taylor, Mr. Hibbard, Mr. Otis, Mr. Galpin.

AGRICULTURAL EDUCATION

PROFESSOR HATCH (chairman); MR. STEWART.

The course in Agricultural Education is required of students in the College of Letters and Science who take the Course for the Training of Teachers and minor in Agriculture and of those in the College of Agriculture who take the Courses for the Training of Teachers in Agriculture.

For Undergraduates

1. Agricultural Education. Origin and development of agricultural education especially for teachers in elementary and secondary schools. *Second semester; two credits.* Mr. HATCH.
2. Methods of Teaching Secondary Agricultural Subjects. Organization and presentation of subject matter adapted to use in secondary schools, intended for those who are planning to teach high school agriculture. *Second semester; two credits.* Mr. STEWART.

For Graduates and Undergraduates

103. Research in Agricultural Education. Special problems in agricultural teaching of elementary, secondary, and collegiate grades. *Throughout the year.* Mr. HATCH.

AGRICULTURAL ENGINEERING

MR. WHITE (acting chairman); MR. ANDREE, MR. SCHINDLER, MR. TENNANT.

The courses in Agricultural Engineering are planned to meet the needs (1) of students desiring a general knowledge of the use of farm machinery, planning farm buildings, and concrete construction; (2) of students intending to become agricultural implement experts; (3) of students preparing for instructional or investigational work.

For Undergraduates

1. General Agricultural Engineering. Farm machinery, planning of farm buildings, principles and practice of farm surveying. *First half of first semester and second half of second semester; lectures and laboratory work; two and a half credits.* Mr. WHITE, Mr. SCHINDLER, Mr. TENNANT.
2. Rural Architecture. Location and construction of farm buildings; heating and ventilation. Prerequisite, course 1 or its equivalent. *First semester; lectures and laboratory practice; two three-hour periods; three credits.* Mr. WHITE, Mr. SCHINDLER.
3. Power Machinery. Construction, efficiency, and operation of power machinery. Prerequisite, course 1. *First semester; one lecture and two laboratory periods; three credits.* Mr. WHITE, Mr. ANDREE.
4. Cement Work. Instruction in cement and concrete for farm purposes. Prerequisite, course 1 or its equivalent. *Second semester; lectures and laboratory practice; two two-hour periods; two credits.* Mr. TENNANT.
5. Farm Machinery. Used in preparing the seed bed, sowing and planting, tilling and harvesting crops. Prerequisite, course 1. *Second semester; lectures and laboratory practice; three two-hour periods; three credits.* Mr. WHITE, Mr. ANDREE.
6. Farm Machinery. To prepare field experts. Prerequisite, courses 3 and 5 and Mechanical Engineering 1 or equivalents. *Second semester; lectures and laboratory practice; three credits.* Mr. WHITE, Mr. ANDREE.
7. Road Building. Location and construction of earth, macadam, and stone roads. *Second semester; lectures; one credit.* Mr. WHITE.
8. Agricultural Mechanics. Machine elements, Principle of power transmission, farm pumps and water supply systems. *Repeated each semester; one lecture and one two-hour laboratory period; two credits.* Mr. WHITE.

19. Thesis and Research Work. This course varies in the subject matter, according to the lines in which the thesis is

written. *Throughout the year; two credits.* Mr. WHITE, Mr. ANDREE, Mr. SCHINDLER, Mr. TENNANT.

Electives in the College of Agriculture given in College of Engineering.

13. General Carpentry. The use and care of tools and principles involved in the construction of such structures as concrete forms and farm buildings; framing of doors, windows, and interior finishing. *Either semester; one, one and one-half, or two credits.* Mr. MORGAN.

14. General Forge and Bench Work. Forge and bench work, in iron and steel. The process involved in forging, welding, and brazing of iron and steel. The use of the chisel, file, and drill in finishing and fitting. *Either semester; one, one and one-half, or two credits.* Mr. DABNEY, Mr. SCHUMANN, Mr. FLADKY.

For Undergraduates and Graduates

120. Research Work. Special agricultural problems will be assigned to advanced students who have had the necessary previous training. Prerequisites, courses 2, 3, 4, 5, 6. *Both semesters; credit by arrangement.* Mr. WHITE.

AGRICULTURAL JOURNALISM

PROFESSOR HOPKINS (chairman); MR. MCINTYRE.

The courses offered by the department of agricultural journalism are intended to be of special service to the young men who expect to engage in farming and who, therefore, may have occasion to write for publications and certainly will have farm produce and products to sell. To this end the work is very largely confined to studies in agricultural writing and farm advertising.

For Undergraduates

1. Agricultural Journalism. The details of preparing articles for weekly and farm papers. Lectures and practice work. *First semester; two credits.* Mr. HOPKINS.

2. Agricultural Editing. Editing and publishing, with special reference to the Wisconsin Country Magazine. Prerequisite, Agricultural Journalism 1. *Throughout the year; one credit each semester.* Mr. McINTYRE.
3. Methods of Farm Advertising. Principles and methods of advertising farm products; planning campaigns, writing advertisements, etc. Lectures and assignments. *Second semester; one credit.* Mr. HOPKINS.
4. Advanced Agricultural Journalism. Writing for weekly, daily, and farm papers. Illustrating. Prerequisite, Agricultural Journalism 1. *Second semester; two credits.* Mr. HOPKINS.

19. Thesis. Original investigations in agricultural journalism or agricultural advertising. *Both semesters; two credits.* Mr. HOPKINS.

AGRONOMY

PROFESSOR MOORE (chairman); ASSISTANT PROFESSORS DELWICHE, NORGORD, STONE; MR. GRABER, MR. LEITH, MR. LUNZ, MR. MORTIMER.

The courses in Agronomy are designed to give a thorough understanding of the general and scientific principles which underlie the production of farm crops; to fit students to classify, judge, and grade cereals and forage plants commercially and in competitive displays; to inspect farm seeds, identify noxious weeds and to prepare students for instructional and research work in Agronomy.

For Undergraduates

1. Description, Classification, and Judging of Cereals. Types and structure of corn and small grains. *First half of first semester and second half of second semester; laboratory work; two and a half credits.* Mr. MOORE, Mr. LEITH, Mr. GRABER, Mr. MORTIMER.
2. Forage Plants. Seed and feed production. Testing, judging, and sowing of their seeds, and best methods of rota-

tion and curing the crops. Prerequisite, course 1. *Second semester; lectures; three credits.* Mr. MOORE, Mr. GRABER.

3. Sugar and Fiber Crops. Varieties, types, cultural methods, and distribution of sugar beets, sugar canes, cotton, hemp, etc. *Second semester; two credits.* Mr. NORGORD.

19. Thesis. Original work and investigation on some assigned topic, bearing upon farm crops. Actual experiments will be required in the thesis work. *Throughout the year; four credits.* Mr. MOORE, Mr. NORGORD, Mr. STONE, Mr. LEITH, Mr. GRABER.

For Undergraduates and Graduates

104. Cereals. A detailed study of the uses, distribution, culture, composition, and improvement of grain crops. Prerequisite, course 1. *First semester; lectures; three credits.* Mr. LEITH.

120. Seed Inspection and Weed Control. Grain, grass, legume and weed seed identification and inspection; germination and purity tests. Identity, reproductive processes, and methods of eradication of weeds. Prerequisite, course 1. *First semester; lectures, assigned readings and laboratory work; three credits.* Mr. STONE.

121. Advanced Cereal Judging. A continuation of the practical work in judging, grading, and type study of cereals as outlined in course 1. Prerequisite, course 1. *Second semester; laboratory work; two credits.* Mr. STONE, Mr. LEITH.

130. Breeding Grains and Forage Plants. Principles and methods of plant breeders. Propagation of new varieties. Lectures, assigned readings, and laboratory work. Prerequisites, Botany 101, Agronomy 1 and 2. *Second semester; three credits.* Mr. NORGORD.

ANIMAL HUSBANDRY

Emeritus PROFESSOR HENRY, PROFESSORS ALEXANDER, HUMPHREY (chairman); ASSOCIATE PROFESSOR FULLER; ASSISTANT PROFESSOR TORMEY; MR. KLEINHEINZ, MR. KUHLMAN, MR. MARKEY, MR. OOSTERHUIS.

For Undergraduates

1. Elementary Live Stock Judging. Points and characteristics of breeds of cattle, horses, sheep, and swine. *Last half of first semester; three laboratory periods and two lectures; two and one-half credits.* Mr. FULLER, Mr. KUHLMAN, Mr. TORMEY, Mr. OOSTERHUIS.
2. Live Stock Practice. Approved methods in management of farm animals. *First half of first semester; lectures and quiz; two and one-half credits.* Mr. ALEXANDER, Mr. FULLER, Mr. TORMEY, Mr. OOSTERHUIS, Mr. KLEINHEINZ.

19. Thesis Work. *Two credits.* Mr. ALEXANDER, Mr. HUMPHREY, Mr. FULLER, Mr. OOSTERHUIS, Mr. TORMEY.

For Undergraduates and Graduates

120. Breeds of Live Stock. A study of the origin and characteristics of the breeds of live stock. *Second semester; three credits; lectures, M., W., F.* Mr. FULLER.
123. Advanced Live Stock Judging. Practical applications of the principles and standards governing the judging of live stock. Prerequisite, course 1. *First semester; lectures and laboratory work; five credits.* Mr. FULLER, Mr. KLEINHEINZ, Mr. OOSTERHUIS, Mr. TORMEY.
124. The Art of Breeding. A study of the principles and approved methods relating to the breeding of live stock. Prerequisites, courses 1, 2. *Second semester; lectures; two credits.* Mr. HUMPHREY.
126. Live Stock Feeding. Feeding of farm animals and composition of feeding stuffs. *First semester for Middle Course students with no prerequisite; second semester for Long Course students,* prerequisite, course 1. *Text-book work and lectures; three credits.* Mr. TORMEY.

127. Live Stock History. A study of leading individuals and families of live stock including records and pedigrees. Prerequisites, courses 1 and 120. *Second semester; two credits.* Mr. FULLER.

For Graduates

230. Live Stock Problems. Problems in Animal Husbandry. Prerequisites, courses 1, 120, 124, 126. *Throughout the year. Assigned reading or research work; conferences weekly; three to five credits.* Mr. ALEXANDER, Mr. FULLER, Mr. HUMPHREY, Mr. OOSTERHUIS, Mr. TORMEY.

DAIRY HUSBANDRY

PROFESSOR FARRINGTON (chairman); ASSOCIATE PROFESSOR SAMMIS; ASSISTANT PROFESSORS BENKENDORF, LEE; MR. BAER, AND ASSISTANTS.

The department offers instruction in the theory and art of manufacturing dairy products, suited to the needs of (a) farm dairymen, (b) investigators or teachers, (c) managers, operators, or inspectors of creameries, cheese factories, or city milk plants. Students intending to major in this department should elect courses 2 and either 3 or 4 at the beginning of the junior year.

For Undergraduates

1. General Farm Dairying. Elementary study of milk, and methods of testing and manufacturing farm dairy products. *First half of second semester; two and one half credits; lectures,* Mr. FARRINGTON; *laboratory,* Mr. BENKENDORF, Mr. BAER.
2. Milk Inspection. Advanced work with methods of testing and inspecting dairy products and detection of adulterations. Prerequisite, course 1. *First semester; one, two, or three credits; lecture,* Mr. FARRINGTON; *laboratory,* Mr. BENKENDORF.
3. Creamery Butter Making. Theory and practice of cream separation and butter manufacture under commercial con-

ditions. Prerequisite, course 1. *Throughout the year; three credits; lectures*, Mr. FARRINGTON; *laboratory*, Mr. LEE.

4. Cheese Making. Practical and experimental work in making, curing, and scoring several kinds of commercial cheese. Prerequisite, course 1. *Throughout the year; three credits; lecture; laboratory.* Mr. SAMMIS and assistants.

5. City Milk Supply. The commercial handling of all classes of market milk and milk preparations. Milk ordinances and Board of Health regulations of milk supplies; ice cream making. Prerequisite for second semester, course 2. *Throughout the year; lectures and laboratory; three credits.* Mr. BAER.

6. Dairy Machinery. Shop practice with engines, boilers, artificial refrigerating machinery, pipe fitting, etc. *Second semester; laboratory; three credits.* Mr. BENKENDORF and assistant.

19. Thesis. The thesis may be written on assigned topics in the department. Prerequisite, courses 2, and 3, 4, or 5. *Throughout the year; two credits.* Mr. FARRINGTON, Mr. SAMMIS.

For Undergraduates and Graduates

120. Market Milk Problems. Problems relating to market milk and its control. For advanced students. Prerequisite, course 5. *Throughout the year; conferences, laboratory and field work; three or five credits.* Mr. FARRINGTON, Mr. BAER.

121. Butter Yield and Quality. A study of various factors in the process of buttermaking for advanced students. Prerequisite, course 3. *Throughout the year; conferences; laboratory and field work; three to five credits.* Mr. FARRINGTON, Mr. LEE.

122. Cheese Making and Curing. (a) The recovery and utilization of factory wastes. (b) Standardization of materials and methods. Prerequisite, course 4. *Throughout the year; conferences and laboratory work; three or five credits.* Mr. SAMMIS.

ECONOMIC ENTOMOLOGY

ASSOCIATE PROFESSOR SANDERS (chairman); MR. BURRILL, MR. FRANCE.

Destructive and dangerous insect pests are considered with regard to their recognition, evidences of attack, and extent of injury. The preparation and use of insecticides and other control measures are discussed.

Course 101 is intended for the general student; course 103 for those students majoring in Horticulture.

For Undergraduates and Graduates

101. General Economic Entomology. A general survey of insects in their economic relation to agriculture, horticulture, and public health. *First semester; lectures and laboratory; three credits.* Mr. SANDERS, Mr. BURRILL.

103. Horticultural Entomology. A study of insects affecting horticulture. Also the preparation and use of insecticides and types of spray machinery are discussed. Prerequisite, course 101. *Second semester; lectures and laboratory; three credits.* Mr. SANDERS, Mr. BURRILL.

110. Beekeeping. Principles of beekeeping practice; care and management; control of diseases; queen rearing and honey production. *Second semester; lectures, laboratory, and apiary practice; two credits.* Mr. FRANCE.

115. Seminary. For advanced and graduate students. Methods of research, current literature and bibliography of economic entomology are considered. *Throughout the year; one credit.* Mr. SANDERS.

120. Research Work. Special economic problems for advanced students. Prerequisite, course 101. *Throughout the year; credit by special arrangement.* Mr. SANDERS.

EXPERIMENTAL BREEDING

ASSOCIATE PROFESSOR COLE (chairman); MR. KELLEY; MR. IBSEN.

The following courses are designed for those who have had some biological training, and who desire a general knowledge of the subjects of heredity and breeding, or who contemplate following these lines, either from the theoretical or practical point of view. Special opportunity is offered those doing advanced work to get practical experience in the methods of experimental breeding.

For Undergraduates

101. Principles of Breeding. Variation and heredity, with special reference to their application to the problems of plant and animal breeding. *First semester; three credits.* Prerequisite, Botany 1, and Zoology 3. *Lectures, laboratory and demonstrations.* Mr. COLE, Mr. KELLEY.

105. Advanced Genetics. Scientific study of heredity. Especially adapted to students who propose going into Experiment Station work. Prerequisite, Experimental Breeding 101 or equivalent work in the departments of botany or zoology. *Lectures. Second semester; two credits.* Mr. COLE.

120. Problems of Heredity and Breeding (Seminar). Weekly conferences, taking up current literature and special topics. Consent of instructor required before election. *Throughout the year; one credit.* Mr. COLE.

121. Topical Work in Heredity and Breeding. Assigned topics for reading, conference, and report. For those not prepared for course 225. To be taken with or subsequently to course 101. *Credits and hours to be arranged.* Mr. COLE.

For Graduates

225. Research. For students qualified by preliminary training. Work may be based on the analysis of available data, or upon new data acquired by experiment. *Credits and hours to be arranged.* Mr. COLE.

Summer work. No formal courses are given in this department during the summer, but arrangements may be made by a limited number of properly qualified graduate students to carry on research under direction during this period. Such work may extend through the whole season, and will be applicable toward an advanced degree.

FORESTRY

ASSOCIATE PROFESSOR COOK (chairman); MR. FENSKA.

In Farm Forestry the courses are planned to meet the needs of students in both the Long and in the Short Course in Agriculture desiring a general knowledge of the forestry and economic principles underlying the formation and intelligent protection and use of the farm woodlot. Instruction is given by means of lectures, and of demonstrations on the woodlots of the University Farm.

1. Farm Forestry. Relation of forestry to agriculture. Care of the woodlot, windbreaks, shelterbelts; starting new trees in the woodlot, methods of propagation, selection and identification of species; measuring the crop, sale value. *First semester; lectures and field practice; one credit.* Mr. COOK.

Forest Rangers' Course

In the Forest Rangers' course, the general plan of which is described on p. 425, instruction will be offered by the forestry department in dendrology, silviculture, forest measurements, utilization, forest protection, forest administration and policy. Work will also be given by other departments of the college in soils, surveying, mapping, mechanical drawing, fish and game propagation, meteorology, diseases of trees, forest entomology, forge work, and camp management.

These courses are not open to students in the Long, Middle, or Short Course.

HORTICULTURE

ASSOCIATE PROFESSOR J. G. MOORE (chairman); ASSISTANT PROFESSORS HOWARD, MILWARD; MR. HEPLER, MR. JOHNSON, MR. POTTER.

The courses offered in this department are designed to give the student a thorough working knowledge of the principles and practices of the most important lines of horticultural work.

For Undergraduates

1. Principles of Fruit Growing. An introductory course designed to cover the principles of fruit growing. *Second half of first semester; five lecture periods a week; two and one-half credits.* Mr. MOORE.
2. Fruit Growing. Practical work in spraying, pruning, cultivation, etc. Fruit packages, plans for storage houses, etc. Prerequisite, course 1. *Second semester; three laboratory or lecture periods a week; two credits.* Mr. HOWARD, Mr. POTTER.
3. Vegetable Gardening. Principles and practices used in growing vegetables. Practical work in the gardens; hot bed and cold frame construction. *Second semester; three lecture or laboratory periods; three credits.* Mr. HEPLER.
4. Vegetable Forcing. Forcing-house construction and heating; growing vegetables under glass; practical work in the forcing houses. *First semester; lectures and laboratory; three credits.* Mr. HEPLER.

4a. Vegetable Forcing. A continuation of Horticulture 4. Forcing house problems and special cultural practices. Prerequisite, Horticulture 4. *Second semester; two credits.* Mr. HEPLER.

5. Small Fruit Culture. A discussion of the principles and practices of successful culture of cane, bush, and other small fruits. *First semester; one credit.* Mr. MOORE.
6. Landscape Gardening. Discussion of the principles of landscape art. Field and laboratory work in study of decorative plants, and making planting plans. *First semes-*

ter; lecture and laboratory periods; three credits. Mr. MOORE, Mr. HEPLER.

7. Plant Propagation. Instruction in the various methods of propagating horticultural plants. *Second semester; lecture and laboratory period; two credits.* Mr. MOORE.

8. Floriculture. The propagation and care of greenhouse, garden, and lawn plants with special reference to home floriculture. Designed for women. *Second semester; lectures and laboratory work; three credits.* Mr. MOORE.

19. Thesis. Based on research or experimental work in the department. *One or more credits.* Mr. MOORE, Mr. HOWARD, Mr. HEPLER, Mr. POTTER.

For Undergraduates and Graduates

120. Plant Breeding. A study of the methods involved in applying the theories of heredity to the improvement of horticultural plants. Practice in the technique of crossing. Prerequisite, Botany 1 and Zoology 3. *First semester; three laboratory or lecture periods; three credits.* Mr. HOWARD.

121. Experimental Horticulture. Planning of experiments, keeping records, and experimental work. *Throughout the year; two or more laboratory periods; two to five credits.* Mr. MOORE, Mr. HOWARD, Mr. HEPLER, Mr. POTTER.

122. Systematic Pomology. Advanced course in classification, identification, judging, and handling common fruits. Students electing this course should have had Horticulture 1 and 2. *First semester; lecture and laboratory; four credits.* Mr. MOORE, Mr. POTTER.

123. Systematic Olericulture. Classification of garden vegetables with special reference to types and varieties used in commercial work. Prerequisite, Horticulture 3. *First semester; two laboratory periods; two credits.* Mr. HEPLER.

124. Horticultural History. Study of evolution of horticultural crops, both fruit and vegetable; of the men concerned in their development, and the methods they employed. For advanced students. Lectures and assigned reading. *Second semester; two credits.* Mr. MOORE, Mr. HOWARD, Mr. HEPLER.

125. Advanced Landscape Gardening. Continuation of Horticulture 6. Advanced work in landscape design and drafting and other features of commercial landscape art. Prerequisite, Horticulture 6. *Second semester; two laboratory periods; two credits.* Mr. MOORE, Mr. HEPLER.

PLANT PATHOLOGY

PROFESSOR JONES (chairman); MR. GILMAN, MR. HENDERSON, MR. HUMPHREY, MR. JOHNSON, MR. KEITT, MR. VAUGHAN.

For Undergraduates

1. Diseases of Plants. General introduction to the nature, causes, and remedies of the diseases of economic plants, including field and laboratory studies of a typical series of examples. Prerequisites, Botany 1 and Bacteriology 1. *First semester; three credits.* Mr. JONES, Mr. GILMAN, Mr. JOHNSON.

19. Thesis. Investigation of some problem in plant pathology. Subject should be chosen early, preferably the preceding spring, in order to take advantage of the summer season to secure material. *Throughout the year; two credits.* Mr. JONES.

For Undergraduates and Graduates

102. Methods in Plant Pathology. Practical work in the laboratory and greenhouse with parasitic diseases of plants, isolation of parasites, technique of culture methods, spore germination, and inoculation. Lectures upon special diseases. Prerequisite, Plant Pathology 1. *First semester; three credits.* Mr. JONES, Mr. HENDERSON.

115. Diseases of Special Crops. Outlined to meet the needs of groups of advanced students specializing in particular lines. Not all of the sub-courses will be offered in any one year. Prerequisite, Plant Pathology 1.

a. Diseases of Field Crops. Arranged primarily to meet the needs of students specializing in plant pathology and agronomy. *Second semester; two credits.* Mr. JOHNSON.

b. Diseases of Orchard Fruits. Arranged primarily to meet the needs of students specializing in horticulture and plant pathology. *Second semester; one credit.* Mr. KEITT.

c. Diseases of Timber, and Forest Protection. Lectures, supplemented by a few laboratory exercises, giving a general survey of the factors inimical to the development of forests and the conservation of timber, with particular reference to control measures. *Second semester; one credit.* Mr. HUMPHREY.

d. Diseases of Garden Crops. (Omitted 1913–14.)

122. Fungicides in Relation to Host and Parasite. Lectures and laboratory exercises dealing with the development, composition, adaptation, preparation and methods of application of standard fungicides, and their effect on the host and parasite. An advanced course, primarily intended for students specializing in plant pathology. Prerequisite, Plant Pathology 1. *Second semester; two credits.* Mr. KEITT, Mr. VAUGHAN.

123. Seminary in Plant Pathology. For advanced and graduate students. A study of important original publications, current literature, and methods of research in plant pathology. *Throughout the year; one credit.* Mr. JONES.

125. Research. Students who have had suitable preparation may conduct research work in connection with a thesis or graduate study. *Hours and credits to be arranged.* Mr. JONES.

POULTRY HUSBANDRY

ASSOCIATE PROFESSOR HALPIN (chairman); MR. AHRENS, MR. DICKSON, MR. MUELLER.

The poultry department is well equipped with houses for laying stock and for brooding chicks. It also has a very complete list of incubators, brooders, and other poultry machinery. The present stock consists of twenty-six varieties of chickens, three varieties of ducks, four breeds of geese, and one breed of turkeys.

For Undergraduates

1. Elementary Poultry Raising. A general course dealing with poultry houses, yards, etc.; fattening and marketing poultry; description of breeds and varieties of poultry. *First semester; lectures and demonstrations; two credits.* Mr. HALPIN.
2. Elementary Poultry Raising. Continuation of course 1; production and marketing of eggs; incubation and brooding; summer care and management, etc. *Second semester; lectures and demonstrations; two credits.* Mr. HALPIN.
3. Poultry Practice. Practice in poultry carpentry; caponizing; killing and dressing different grades of market poultry. Ordinary work about a poultry farm. *Throughout the year; laboratory work; one to three credits.* Mr. DICKSON, Mr. AHRENS.
5. Incubation and Brooding. Each student will operate an incubator and brooder keeping accurate records of temperatures, etc. Prerequisite, courses 1, 2, and 3. *Second semester; one to three credits.* Mr. HALPIN, Mr. DICKSON, Mr. AHRENS, Mr. MUELLER.
6. Poultry Judging. Various breeds and varieties of chickens, turkeys, ducks, and geese. Origin, history, and points of excellence. *First semester; two lectures and one laboratory period per week; three credits.* Mr. HALPIN, Mr. DICKSON.
7. Poultry Management. Advanced course. Management of fowls on large poultry farms. Prerequisites, courses 1, 2, and 3. *Second semester; one lecture, one recitation and assigned work; three credits.* Mr. HALPIN, Mr. DICKSON.

SOILS

PROFESSOR WHITSON (chairman); ASSOCIATE PROFESSOR JONES; ASSISTANT PROFESSOR WALSTER; MR. FINNER, MR. GRAUL, MR. MUSBACH, MR. TRUOG, MR. ULLSPERGER.

Course 1 is prerequisite to all other courses except course 2.

Courses 1, 2, and 120 are general in character and are adapted to the needs of all students of agriculture. In addition to these courses, courses 19, 121, and 122 are required of students taking their major in soils, and form a basis for the more advanced courses designed to prepare students for instructional or investigational work in agronomy, soil fertility, or land drainage. Advanced students specializing in this subject are advised to elect courses in chemistry, vegetable physiology, agronomy, geology or hydraulics, according to their special needs, during their senior and graduate years.

For Undergraduates

1. Principles of Soil Physics and Fertility. Origin, composition, tilth, and fertility of soils. Prerequisite, Chemistry 11a. *Second semester; three lectures and two laboratory periods weekly; five credits.* Mr. WALSTER, Mr. FINNER, Mr. GRAUL.

1m. Principles of Soil Physics and Fertility. Same as course 1 required of Middle Course students. *Second semester; three lectures; three credits.* Mr. JONES.

2. Land Drainage. Principles and surveying operations. Field work in tile laying. *Second semester; two lectures and one quiz; two laboratory periods; three credits.* Mr. JONES, Mr. FINNER.

19. Thesis and Assigned Work. *Credits and hours to be arranged.* Mr. WHITSON, Mr. JONES, Mr. WALSTER, Mr. TRUOG, Mr. GRAUL.

For Undergraduates and Graduates

120. Soil Management. Adaptation of systems of farming to sand, marsh, heavy clay, and other soils; influence of various systems of farming on the maintenance of fertility. *First semester; lectures; two credits.* Mr. WHITSON.

121. Soil Analysis. Laboratory practice. "Total" analyses, availability methods, estimation of soil acidity, organic matter, humus, etc. Use of colorimetry in soil studies. *First semester, one lecture and two or four laboratory periods; three or five credits.* Mr. WALSTER.

122. Soil Physics. Quantitative determinations and studies dealing with the physical properties of soils. *First semester, one lecture and two laboratory periods; three credits.* Mr. FINNER.

123. Drainage Design. Advanced field observations; designing drainage and irrigation systems; detailed studies in the vicinity of Madison. *Second semester; conferences and field work by appointment; three credits.* Mr. JONES.

124. Plant Nutrition. The relation of the plant and soil. Lectures, reports, and plant house work on soil acidity, toxicity theory, root excretions, etc. *First semester; two credits.* Mr. WALSTER.

125. Origin and Classification of Soils and Agricultural Climatology. Geological and meteorological processes of soil formation as a basis for their mapping. Alternates with course 127. (Given 1914.) *First semester; three credits.* Mr. WHITSON.

126. Soil Physics and Cultivation. Class and field studies and laboratory determinations chiefly upon tilth, moisture, and temperature of cultivated soils. *Second semester; one lecture and two laboratory periods; three credits.* Mr. JONES.

127. Advanced Soil Chemistry. The soil minerals, solution and interacting processes. Methods of soil investigation and interpretation of data. Alternates with course 125. (Given 1915.) *First semester; lectures; two credits.* Mr. TRUOG.

For Graduates

231. Research Work. Graduate students with sufficient preparation will be assigned special problems for study. Mr. WHITSON, Mr. JONES, Mr. WALSTER, Mr. TRUOG.

232. Soil Journal Club. Important articles on soil problems will be reviewed by members of the department and advanced students.

VETERINARY SCIENCE

PROFESSOR ALEXANDER; ASSOCIATE PROFESSOR HADLEY (chairman); ASSISTANT PROFESSOR BEACH; MR. LOTHE.

The following courses in Veterinary Science are designed to give agricultural students scientific and practical information and training regarding the intelligent care and treatment of diseased and injured animals. The classroom work will be supplemented by live animals, specimens, models, charts, surgical instruments, and other apparatus. These studies will be found especially valuable for those students who later intend to take a veterinary medical course or are preparing themselves for bacteriological work.

For Undergraduates

1. The Animal Body. A study of the anatomy and physiology of the animal body. To familiarize the student with the appearance of normal organs comparisons are made with pathological conditions. *First semester; lectures and recitations; three credits.* Mr. HADLEY.
2. Common Diseases of Animals. Special attention to first aid treatment and care of diseased and injured live stock. *Second semester; two lectures; two credits.* Mr. HADLEY.
3. Veterinary Hygiene. A lecture course especially pertaining to the hygiene and diseases of the dairy cow. *First semester; two lectures; two credits.* Mr. ALEXANDER.

19. Thesis. Original work and investigation of some phase of live stock sanitation. *Throughout the year; two or four credits.* Mr. ALEXANDER, Mr. HADLEY.

For Undergraduates and Graduates

123. Exterior of the Horse. A course dealing with the physics and mechanics of locomotion and examination of the horse for soundness. *Second semester; lectures and laboratory periods; two credits.* Mr. ALEXANDER.

124. Topical work. Students with adequate preparation are given assignments and laboratory work for the detailed study of animal diseases. *Throughout the year; credits and hours to be arranged.* Mr. HADLEY, Mr. BEACH, Mr. LOTHE.

THE WISCONSIN AGRICULTURAL EXPERIMENT STATION

H. L. RUSSELL, Director.

The Wisconsin Agricultural Experiment Station is organically associated with the College of Agriculture and members of the faculty of the college constitute the staff of the station. The purpose of the station is the promotion of agricultural science by research and experimentation. The funds for the work of the station come from both state and federal appropriations. Each of the several departments has research work continually in progress, some members of the staff devoting their entire time to this work. Such subjects are selected as are of the greatest importance to the farmers of Wisconsin, so far as the facilities at hand permit.

The publications of the Experiment Station include an annual report, a series of popular bulletins, a series of research bulletins, and a series of circulars of information. The popular bulletins, including helpful discussions of the results of experiments, are distributed free to residents of the state upon application and are issued in editions of 20,000 to 50,000 copies. The research bulletins contain technical data and discussions not designed for wide distribution and are sent to libraries, investigators, etc. Thirty Annual Reports and over 266 bulletins besides 45 circulars of information, have been issued. Any person desiring to receive the popular bulletins should apply to H. L. Russell, Director, Madison, Wis.

THE FARMERS' INSTITUTES

GEORGE MCKERROW, Superintendent, NELLIE E. GRIFFITHS, Clerk.

The Department of Farmers' Institutes of the College of Agriculture is maintained by a legislative provision which appropriates $20,000 annually for the purpose of conducting farmers' institutes at various points throughout the state. The superintendent, assisted by special conductors and workers, during the season 1913–14 conducted 110 two-day institutes,

40 cooking schools in 68 counties and an annual three-day Round-up Institute and Cooking School at Ellsworth, Pierce County, March 17, 18, and 19, 1914. Besides these, one one-day swine institute, and two one-day alfalfa institutes were held.

A hand-book containing a report of the Round-up is issued annually in an edition of 50,000 copies and distributed free at institutes. A cook book is also issued in an edition of 10,000 copies for distribution at the cooking schools.

COURSES IN HOME ECONOMICS

The department of home economics is connected with the College of Agriculture for administrative purposes and the faculty of this college gives instruction in certain subjects, such as food chemistry, bacteriology, and entomology.

The faculties of the various other colleges, schools, and courses of the University give instruction in certain required and elective subjects offered to students taking the course in home economics.

FACILITIES FOR INSTRUCTION

The department of home economics is located in the Home Economics Building, where offices, class rooms, and laboratories are provided, and in the Practice Cottage where the work in household management, house decoration, and dietetics have ample scope for practical solution. The department is provided with all the necessary furnishings and apparatus to give thorough instruction in the subjects of house and institutional management and sanitation, art and design, food preparation, dietetics, textiles, sewing, dressmaking, and house decoration.

The new equipment of the department and the well appointed laboratories, give an opportunity for theoretical and practical training in home economics not heretofore available. There is abundant opportunity for study and practice both individually and in classes.

The work in chemistry and bacteriology, as applied to home economics, is done in sections of the laboratories set

aside for this work. The courses given in the College of Letters and Science are taken in various class rooms of that college. Electives may be chosen in other colleges of the University according to the nature of the work. Women taking the course in home economics are granted the same privileges of residence in Chadbourne Hall, and Barnard Hall, the women's dormitories, and in the use of the women's gymnasium, etc., as other women in the University.

TERMS OF ADMISSION

Students are admitted to this department on the same basis as are students of other courses in the University. See Index under Entrance Requirements.

FEES AND EXPENSES

See Index under Laboratory and Tuition Fees.

DEGREE

The degree of Bachelor of Science (home economics) is conferred upon those who complete 36 to 40 credits in home economics.

SCOPE OF THE COURSES IN HOME ECONOMICS

The department of home economics offers the following courses which deal with the principles which underlie the proper management of the home, care of children, hygienic and sanitary conduct of institutions, and the economic conditions affecting the work of women.

The courses are planned to meet the needs of five classes of students:

1. Those students who desire a general knowledge of the subject matter as a basis for application in the study of the general arts and sciences as a part of a liberal education;

2. Those students who desire to make a detailed study of home economics in its relation to the arts and sciences which are fundamental in the management of the home;

3. Those students who wish to teach home economics in the secondary schools and in higher institutions;

4. Graduate students who have the requisite knowledge to benefit by research work in subjects connected with the home.

5. Those who wish to prepare themselves for other vocations than teaching or home-making, or for vocations which can be carried on in connection with other lines of work.

The courses in the related sciences as chemistry, physics, physiology, zoology, bacteriology and economics are given in the different colleges of the University.

OUTLINE OF GENERAL COURSE IN HOME ECONOMICS

Freshman Year

FIRST SEMESTER	Credits.
English 1, (L. & S.) a study of the elements of efficient writing with practice in composition	3
German 2 S, or French 10, and 13 or 15, (L. & S.) general courses adapted to the requirements of the student	4
Chemistry 1, (L. & S.) lectures and laboratory work in general chemistry and qualitative analysis	5
Home Economics 2, Art and Design	3
	15

SECOND SEMESTER	Credits
English, German or French, Chemistry — Same as first semester	3, 4, 5
Home Economics 3, Selection and Preparation of foods	3
	15

Sophomore Year

FIRST SEMESTER	Credits
Physics 1, (L. & S.) lectures and laboratory practice in general Physics	5
Chemistry, Household 6	5
Physiology 1, (L. & S.) a general course of lectures and laboratory work in the elements of human anatomy and physiology	3
Electives	2 or 3
	15

SECOND SEMESTER	Credits.
Physics 1, (L. & S.) same as first semester	5
Bacteriology, 9, (L. & S.) lectures and laboratory work with bacteria as concerned with water, milk, other food supplies and materials to be found in the household	5
Home Economics 5, Textiles	4
	14

Junior Year

FIRST SEMESTER	Credits
Home Economics 11, manufacture and selection of clothing	3
Home Economics 7, home architecture and sanitation	5
Home Economics 4, economics of food supply	3
Electives	5
	16

SECOND SEMESTER	Credits
Home Economics 8, household decoration	4
Home Economics 6, dietetics	5
Electives to be chosen as indicated below	3
Home Economics 11, manufacture and selection of clothing	3
	15

Senior Year

FIRST SEMESTER	Credits
Home Economics 10, household management	3
Thesis to be assigned in connection with major study	2
Electives to be chosen as indicated below	10
	15

SECOND SEMESTER	Credits
Home Economics 109, humanics	4
Home Economics 120, seminary (elective)	1
Home Economics 121, teachers' course	2
Thesis	2
Electives to be chosen as indicated below	6
	15

ELECTIVES

Opportunity is given in the junior and senior years for the election of related courses of study in various lines adapted to the requirements of the students. Information concerning electives will be furnished students upon application.

The following electives are recommended for those desiring to teach home economics: Agricultural Chemistry 5—Animal Chemistry; Botany 1—General Botany; Chemistry 11a—Quantitative Analysis, 120—Organic (first semester); Economic Entomology 106—Household Insects; Education 13—Principles of Education, 41—Educational Psychology; English 30—General Survey of English Literature; Horticulture 8—Floriculture; Philosophy 1—Psychology, 103 and 104—Experimental Psychology; Political Economy 1—Elements of Economics, 130—Statistics, 139—Social Psychology, 141—Poverty and Relief; Zoology 4—Elementary Zoology.

MAJORS IN HOME ECONOMICS

Instead of taking the general course as outlined on page 462 at the beginning of the junior year, the student may specialize in either Textiles or Foods, choosing one of the majors indicated in the following paragraphs. The requirements for a major in home economics are not less than 26 credits nor more than 30 credits, taken during the junior and senior years.

(1) Textiles. The students who major in textiles will include beyond the work in the freshman and sophomore years, home economics courses carrying at least 22 credits, and thesis with other electives to make 120 credits. Courses in history, art, economics, sociology, advanced chemistry, are suggested as electives. On the completion of the major in textiles the graduate may enter commercial pursuits, or teach "Domestic Art" in the high school or college.

(2) Foods. The students who major in foods will include, beyond the sophomore year, home economics courses carrying at least 22 credits; and thesis four credits; and other electives to make 120 credits. Electives may include advanced courses in chemistry; physiological chemistry; bacteriology; political economy; history; English; commerce (accounting and commercial law). This course may prepare the student to take a position as

dietitian, institutional manager, or teacher of domestic science in the high school or of food and dietetics in college.

In case the student elects the majors under (1) or (2) the following outline will be followed:

Junior Year

FIRST SEMESTER	Credits
Major	8
Electives (open in any college)	7
	15
SECOND SEMESTER	
Major	7
Electives (open in any college)	8
	15

Senior Year

FIRST SEMESTER	
Major	3
Thesis	2
Electives (open in any college)	10
	15
SECOND SEMESTER	
Major	4
Thesis	2
Home Economics 109, Humanics	4
Electives (open in any college)	5
	15

MINORS IN HOME ECONOMICS

A minor in Home Economics is not less than 15 nor more than 20 credits in Home Economics subjects. The minors may be taken with the major but as a rule the minor is intended for those majoring in Letters and Science and desiring a more intensive and also a broader view of home economics problems. A minor may be taken in Foods, Textiles, or Housing Problems.

(1) The minor in Foods must include Home Economics courses 1, 3, 4, and other related courses to make 15 to 20 credits.

(2) The minor in Textiles must include courses 2, 5, 11, and other related courses to make 15 to 20 credits.

(3) The minor in Housing Problems is intended to be taken with a major or minor in Sociology so that those intending to do the work of sanitary inspector or other social settlement work will have a broad foundation knowledge of the fundamental problems in housing conditions. This minor includes Home Economics 2, 7, 8, 10 for which the prerequisites are Physics 1, Bacteriology 9.

EDUCATIONAL REQUIREMENTS FOR STATE TEACHERS CERTIFICATE

Graduates receiving the B. S. degree in Home Economics will be entitled to receive the University Teachers Certificate, upon the recommendation of fitness by the Department of Home Economics and upon completing as a part of their elective work, the following educational courses: Psychology, *three credits;* Education, *five credits;* Departmental Teachers Course, *two credits.*

THESIS

All candidates for a degree from the University are required to present a graduating thesis which must be acceptable to the professor at the head of the department. Theses must represent original work upon some subject which has been arranged after consultation with the student's adviser and the head of the department in which the work is done.

DESCRIPTION OF COURSES

PROFESSORS MARLATT (director), SCHMIT; MISS J. A. TURNER, MISS PFUND, MISS GRADY, MISS ECKHARDT, MISS BINZEL, MISS BUNNELL, MISS FLEMING, MISS SCOVILL, MISS STEWART, MISS SCHOLES, MISS PARSONS.

For Undergraduates

1. General Survey. *First semester,* Food; *Second Semester,* the House Plan, First Aids, Cost of Living, etc. *Throughout the year; three credits; lectures Tu., Th.,* 9; MISS MARLATT. *Laboratory and quiz once a week.* MISS SCHOLES, MISS BUNNELL, MISS PARSONS, MISS GRADY.

2. Art and Design. Principles of design; lectures on the theory of color and its application in the home. *Each semester; lectures, Tu., Th.*, 10, *and two laboratory periods; three credits.* Miss TURNER, Miss GRADY.
3. Principles of the Selection and Preparation of Food. Prerequisite, entrance credit in physics or chemistry or first semester of Chemistry 1. *Second semester; lectures Tu., Th.*, 10; *three credits;* Miss SCHOLES. *Two laboratory periods.* Miss PARSONS, Miss FLEMING, Miss STEWART.
4. Economic Problems of the Food Supply. Continuation of course 3. Study of factors entering into cost of production, methods of preservation; processes of food manufacture; food laws and food inspection; testing of apparatus. Prerequisites, Chemistry 1, Home Economics 3. *First semester; lectures Tu., Th.*, 10; *two laboratory periods; three credits.* Miss FLEMING, Miss SCHOLES.
5. Textiles. Historical, economic, chemical, hygienic study of textiles. Microscopic tests of fibres; laundry problems as they affect color, shrinkage, tensile strength. Prerequisites, Chemistry 1, Agricultural Chemistry 6. *Second semester; lecture and quiz, Tu., Th.*, 10; *three laboratory periods; four credits.* Miss ECKHARDT, Miss STEWART, Miss PFUND.
6. Dietetics. Dietary standards; balanced rations; diet as influenced by age, sex, and occupation; construction of dietaries and service of meals; dietetic treatment in disease and principles of home nursing. Prerequisites, Home Economics 3, 4, Physiology 1, Bacteriology 1–9, Chemistry 1, Household Chemistry 6. *Second semester; lectures M., W., F.*, 10; *two laboratory periods per week; five credits.* Miss MARLATT, Miss PARSONS, Miss BUNNELL.
7. House Architecture and Sanitation. Prerequisites, Chemistry 1, Physics 1, Bacteriology 1, Home Economics 2. *First semester; lectures M., W., F.*, 10; *two laboratory periods; five credits.* Miss MARLATT.
8. Household Decoration. Floor coverings and wall hangings; pictures; economic problems in house furnishing. Prerequisites, Home Economics 2, 5, 7. *Second semester; lectures Tu., Th.*, 10. *Two laboratory periods; four credits.* Miss J. A. TURNER, Miss GRADY.

10. Household Management. Prerequisites, Chemistry 1, Bacteriology 1 and 9, Physics 1, Home Economics 2, 3, 4, 5, 6, 7, 8. *First semester; lectures and laboratory, Tu., Th.*, 11; *one laboratory period; three credits.* Miss MARLATT, Miss SCOVILL.

11. Manufacture and Selection of Clothing. History of costume, costume designing, comparison of home and factory made clothing; hygienic factors involved in clothing; economic and sociological aspects of the clothing industry. Prerequisites, Home Economics 2 and 5. *Throughout the year; lectures and quiz Tu., Th.*, 10; *three laboratory periods per week; six credits.* Miss SCHMIT, Miss ECKHARDT, Miss PFUND.

For Graduates and Undergraduates

101. Research Work. Special Home Economics problems will be assigned to advanced students who have had the necessary previous training. *Both semesters; credit by arrangement.* Miss MARLATT, Miss ECKHARDT.

102. Topical Work. Assigned topics for reading, conference, and report. May precede or be taken in connection with 101. *Both semesters; credit by arrangement.* Miss MARLATT, Miss ECKHARDT.

103. Economic History of Textile Industry. A survey of the development of the textile industry from medieval industrial organization to present day problems of factory and sweat-shop work. *Second semester; Tu., Th., two credits.* Miss ECKHARDT.

104. History of Costume in its Sociological Aspect. History of costume in classical antiquity, its subequent development, with its periodic rhythm in design, its relation to the leisure class and to the cost of living. *First semester; two credits.* Miss SCHMIT.

109. Humanics. Development from before infancy to adolescence; problems of hygiene, mental development, and habit formation. Open to seniors in Home Economics, and seniors in Letters and Science who have taken biology. *Lectures M., W., F.*, 9, *quiz F.*, 11; *four credits.* Miss MARLATT.

120. Seminary. Problems connected with the home, institutional management, and the home economics movement in education. *Second semester; one credit.* Miss MARLATT.

121. Teachers' Course. Existing courses in Home Economics. Planning courses and equipment; observation and practice work in presentation. Prerequisites, Home Economics 2, 3, 4, 5, 6, 7, 8, 109, 10, 11. *Second semester; two credits.* Miss MARLATT, Miss ECKHARDT Miss SCHMIT.

122. Institutional Management. For seniors and graduates. Conditions involved in housing and feeding large groups of people. *Lectures; two laboratory periods Tu., Th.,* 11; *second semester; four credits.* Miss SCOVILL.

123. Seminar in Housing Problems. Effect of present conditions on health; building associations; laws to improve housing conditions. *First semester; three credits.* Miss MARLATT.

124. Vocational Education in Home Economics. Origin and development of industrial and vocational education in Europe and United States. Study of existing courses and methods used in elementary and secondary schools. *Second semester; two credits.* Miss SCHMIT.

HOUSEHOLD CHEMISTRY AND BACTERIOLOGY

For descriptions of courses in Household Chemistry and Bacteriology see Index under these subjects.

THE MEDICAL SCHOOL

C. R. BARDEEN, Dean, Professor of Anatomy

ORGANIZATION

During the legislative session of 1907, a bill was passed authorizing the establishment of a Medical School at the University. The complete curriculum of the first two years of the medical course is given. Lack of adequate clinical facilities prevents the establishment at Madison of the last half of the medical course. Full credit is, however, granted at leading schools for work at Wisconsin, so that on the completion of the work here the student may go to some school with abundant hospital and clinical facilities for the completion of his course by two years of further work.

AIMS AND METHODS

The aims of the Medical School are fourfold:

1. To encourage a thorough preliminary medical education, and to offer adequate facilities for a thorough preparation for clinical work.
2. To aid physicians and others in the state to keep up with the rapid advances in the application of science to medicine.
3. To promote the development of preventive medicine and hygiene.
4. To stimulate research in the sciences upon which modern medicine is based.

ADMISSION REQUIREMENTS IN THE MEDICAL SCHOOL*

For matriculation without condition in the Medical School a student must furnish evidence:

1. That he has satisfied the requirements for admission to the College of Letters and Science.

* Three medical schools in this country require for unconditional matriculation a degree from a college of liberal arts or science; one school requires three years of work in a literary or scientific

2. That he has completed at least the equivalent of two years' work in this college.

3. That he has successfully pursued laboratory courses of college grade in physics, chemistry, and biology.

4. That he has studied elementary Latin.

5. That he has a reading knowledge of French or German.

ADMISSION TO ADVANCED STANDING

A student who has completed elsewhere work equivalent to that required for matriculation and to that of the first year of the medical curriculum, may be admitted to the second year of the medical course.

MEDICAL CERTIFICATES

Upon the successful completion of the two years of the medical curriculum at Wisconsin, a student will be given a formal certificate. A student who completes less than the two years of the medical course may, however, obtain credentials covering the pre-medical and medical studies which he has pursued.

DEGREES

The Medical School offers merely the first two years of a four-year medical curriculum and confers no degrees. The College of Letters and Science confers the degree of Bachelor of Science upon the students registered during the junior and senior years in the Medical School, and the degree of Bachelor of Science or of Bachelor of Arts upon students registered during the senior year in the Medical School. The degrees of Master of Science, Doctor of Philosophy, and Doctor of Public Health are conferred by the University faculty upon graduate students who specialize in the medical sciences and fulfill the requirements of these degrees, which are described in the section devoted to the Graduate School.

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college; twenty-eight require two years of work, seven other schools have announced this requirement for 1914 or 1915, and twenty-one schools require in addition to a four-year high school course, one year of college work devoted especially to physics, chemistry, biology, and language. Twenty-one other schools have announced this requirement for 1914 or 1915.

Thirteen state boards of medical examiners (Minnesota, North Dakota, South Dakota, Connecticut, Colorado, Iowa, Indiana, Utah, Kansas, Vermont, Pennsylvania, Kentucky, and California) have already announced the requirement of one or more years of college work preliminary to the medical course.

Bachelor of Arts

The regular requirements for the degree apply to those students who elect the work of the first year of the medical course during the senior year in the College of Letters and Science.

Bachelor of Science

(Medical Science Course)

Students in the College of Letters and Science who are candidates for this degree are required to take the following studies:

a. English: 6 units (3 hours per week per semester) to be taken in the first year of residence.

b. Language: A reading knowledge of German or French, certified to by a duly authorized official of the respective department,—it will ordinarily require six credits beyond French I or four credits beyond German II to acquire this knowledge; Latin approximately equivalent in amount to two years of study in a high school. Two years of collegiate work in foreign language are required.

c. Courses in physics, chemistry, biology and the medical sciences as outlined in the requirements of the Medical School. The requirement made of candidates for the degree of Bachelor of Arts that six unit hours shall be elected in either history or mathematics does not apply to candidates for the degree of Bachelor of Science (Medical Science Course).

d. The "credit" is the standard for computing the amount of work required for graduation. This is equal to one hour of recitation or lecture per week for one semester. Students are expected to take 15 credits per week in recitations, lectures, and laboratory work, making 30 credits per year, and 120 for the course. In addition, two hours per week (one credit per semester) of gymnastics are required of men, and four hours per week (two credits per semester) of women, during the first two years. Men are required to drill two hours per week during the first two years for which four credits are given. The total requirements for class-room work, military drill, and the gymnasium are, therefore, 128 credits.

No student will be permitted to receive credit toward graduation of more than eighteen credits in one semester in regular studies except by permission of the faculty obtained in advance. Candidates for the degree of Bachelor of Arts are not allowed to elect above 16 credits per semester except when the standings of the preceding semester are all 85 or above. Candidates for the degree of Bachelor of Science cannot count toward graduation more than sixteen credits in any one semester unless the standings are 85 or above.

e. *Major Study.*—At the beginning of the sophomore or the junior year, every candidate for the degree of Bachelor of Arts or Bachelor of Science shall elect as his major subject work in some one department. This department will determine the manner in which the work of the major shall be completed.

f. *Thesis.*—All candidates for a baccalaureate degree are required to present a graduating thesis, the subject of which must be approved by the student adviser and the chairman of the department in which the candidate is doing the work represented by the thesis. The thesis must represent some phase of the student's work in his major study, and must have the character of a scholarly dissertation on the subject.

CHOICE OF COURSES

The student who enters the College of Letters and Science with the intention of studying medicine should arrange his work so that he can take up systematically the work required for medical credit and for a bachelor's degree. Elective work should be chosen with the intention of making the course of study broad as well as thorough.

The following language studies are required:

English 1.

Two years of foreign language including second year French or third year German unless a high grade is obtained in second year German.

Students who have not studied Latin in the high school are required to take a course in elementary Latin.

The following science studies are required*:

Pre-medical Work.

	Lectures and Recitations.	*Laboratory.*	*Hours Credits.*
Chemistry 1	128	192	10
Physics 1	160	128	10
Biology 1	96	256	10
	384	576	30

Studies required in the first year of medical course if not presented for matriculation.

Organic Chemistry	48	96	4
Embryology	16	48	2
	64	144	6

First Year Medical Course.

Histology	32	112	4
Neurology	32	64	3
Gross Anatomy	32	352	12
Physiology	32		2
Physiol. Chem.	20	140	4
	148	668	25

Second Year Medical Course.

Physiology	80	160	7
Pathology	96	160	6
Bacteriology and Hygiene	64	112	5
Pharmacology and Toxicology	64	112	5
	304	544	23

Required of candidates for a bachelor's degree: Thesis: 128 laboratory hours (4 units).

Required and elective work may be arranged according to one of the following plans:

* It is recognized that similar courses at other institutions may not correspond with the scientific courses given at Wisconsin. This will not prevent full credit being granted for approximately equivalent courses pursued elsewhere.

1. SIX-YEAR COMBINED COURSE (LEADING TO THE B. S. AND M. D. DEGREES)

If the student has had a thorough preparation in the high school, he may take work in the freshman and sophomore years which will enable him to matriculate in the Medical School in his junior year, take the B. S. degree and get a certificate for two years of medical study at the end of the senior year and complete his medical course by two years' further study in any medical school which does not require more than two years of college work for entrance. During the freshman and sophomore years such a student will have to confine himself closely to the work in science and language required for matriculation in the Medical School. The exact choice of studies will depend somewhat upon the high school training and the ability of the student.

The following schedule is suggested:

FRESHMAN YEAR

English 1 ..... 3 credits per semester
German or French ..... 4 credits per semester
Biology 1 or Chemistry 1 ..... 5 credits per semester
Electives ..... 3 credits per semester

SOPHOMORE YEAR

German or French ..... 4 credits per semester
Physics 1 ..... 5 credits per semester
Chemistry 1 or Biology 1 ..... 5 credits per semester
Electives ..... 3 credits per semester

JUNIOR YEAR

(First Year in the Medical School)

First Semester		*Second semester*	
Histology	4 credits	Neurology	3 credits
Human Anatomy	6 credits	Human Anatomy	6 credits
Elective	5 credits	Physiological Chemistry	4 credits
		Physiology	2 credits

SENIOR YEAR.

(Second Year in Medical School)

First Semester	*Second Semester*
Medical Bacteriology.. 5 credits	Pathology .....6 credits
Pharmacology & Toxicology .....5 credits	Thesis .....4 credits
Physiology .....7 credits	Elective .....4 credits
	(Physical diagnosis, medical psychology, or advanced work in any of the departments of the medical school.)

2. SEVEN-YEAR COMBINED COURSE (LEADING TO THE B. A. AND M. D. DEGREES)

In this course the student matriculates as a first-year medical student during his senior year in the College of Letters and Science; receives the B. A. degree upon graduation and takes the second year of the medical course as a graduate student. He can then finish the clinical portion of the medical course by two years' further study, thus making the combined arts and medical course seven years. This course is in many ways preferable to the six-year combined course since it permits a greater freedom of election and a broader course of study. The language and science work should follow somewhat the lines laid down for the freshman and sophomore years in the six-year combined course, but can be more spread out and taken in conjunction with various electives to suit the needs and inclinations of the student.

3. COMPLETE ARTS COURSE PRECEDING THE MEDICAL COURSE

Students who can afford the time may take the complete arts course before beginning the technical work of the medical course. A bright, well-trained student not infrequently manages to take the B. A. degree in three years. For such a student, the time needed for the two degrees would be the same as that mentioned above. For other students eight years are required, four for the B. A. course and four for the medical course. A far broader training is thus afforded than in the shorter combined course. Students expecting to finish the

clinical part of the medical course at the Johns Hopkins, Cornell, or Western Reserve University must choose either the course of study mentioned above or the seven-year combined course. The work in sciences and foreign language should include all of that mentioned in the first two years of the six-year combined course and may profitably extend beyond this.

Credit for Medical Work

Full credit for one year of medical work will not be allowed unless the required preliminary studies and the studies of the first year of the medical course have been completed, and the student has been registered two semesters in the Medical School. Full credit for two years of medical work will be granted only to those who have satisfied the preliminary requirements, who have registered for two college years as medical students, and who have completed all the required studies of the regular curriculum.

COURSE FOR PHYSICIANS

The regular courses in the various departments are open to physicians on the adult special basis. It is hoped gradually to develop such shorter special courses as may be of greatest direct, practical benefit to the physicians of the state in aiding them to keep up with the rapid advance in the medical sciences. Suggestions concerning such courses are desired.

COURSES IN PUBLIC HEALTH

Professors Ravenel, Eyster, Bunting; Associate Professors W. D. Frost, A. S. Pearce; Assistant Professor R. H. Denniston; Mr. E. R. Miller, Mr. Hutchcroft, Dr. C. A. Harper.

In conjunction with the State Department of Public Health a course is offered extending over one year and leading to a Diploma of Public Health. This course will be open to those who have received a degree in medicine or in medical or sanitary science and desire to fit themselves especially for public health work. It is also planned to offer a short course each year for those already engaged in public health work, but who desire more insight into certain aspects of this work. The following course leading to a diploma of Public Health is announced for the year 1914–15. The degree of Doctor of Pub-

lic Health is conferred in the Graduate School. For details, see the announcement of the Graduate School.

FIRST SEMESTER

102. Bacteriology for Health Officers. To be given in conjunction with medical bacteriology but with special laboratory work and some special lectures. *M.*, *Tu.*, *W.*, *Th.*, *F.*, *S.*, 8; *five credits.* Dr. RAVENEL.

106. Physiology. Respiration, dietetics, the chemistry of food, air, water, sewage, etc. *Lectures M.*, *W.*, *F.*, 11; *laboratory work M.*, *W.*, 1:30 *to* 4:30. Dr. EYSTER.

103. Meteorology. Mr. MILLER.

119. Animal parasites. *Tu.*, *Th.*, 8 *to* 11. Mr. PEARCE.

SECOND SEMESTER.

101. Special Bacteriology, Pathology, and Hygiene for Health Officers. To include bacteriology of air, water, food and soils, epidemiology, diseases of animals transferable to man, occupational diseases, etc., *M.*, *W.*, *F.*, *S.*, 8. Dr. RAVENEL, Dr. BUNTING.

111. Microscopical Examination of Drugs and Foods. *M.*, *W.*, *F.*, 10 *to* 12. Mr. DENNISTON.

Public Health Administration and Vital Statistics. Mr. Hutchcroft. Course to be arranged for afternoon work in conjunction with the following course.

Practical Field Work. Including use of disinfectants, inspection of slaughter houses, cow sheds, meats, schools, factories, and work shops. Dr. FROST, Dr. HARPER.

Hydrology. *Two credits.* Mr. MEAD.

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 disease both in 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 the carrying out of investigations of this character either at the University or elsewhere in the state.

DEPARTMENTS OF INSTRUCTION

For a description of the courses in botany, zoology, chemistry, physics, psychology, climatology and languages, see departmental announcements in the College of Letters and Science.

ANATOMY

PROFESSOR BARDEEN; ASSOCIATE PROFESSOR W. S. MILLER; DR. DE GARIS, MR. SCHMIDT, MR. TOWNSEND, MISS DYAR.

A group of courses intended to offer a comprehensive view of the gross and microscopic anatomy and the embryology of mammals with especial reference to man is given in this department. In addition, opportunities are offered for advanced work and research in anatomy and for a study of some of the lower animal types of special interest in medicine. The laboratory is thoroughly equipped with apparatus, models, books, and materials for advanced as well as elementary work.

For those prepared to carry on advanced research, special laboratory facilities are provided.

For Graduates and Undergraduates

105. Comparative Mammalian Anatomy. *Second semester; M., W., F.*, 1:30 *to* 3:30; *three credits.* Dr. DE GARIS.

110. Histology and Organology. The study of the tissues, histology, is first taken up, and this is followed by the study of the minute structure of the chief mammalian organs. *First semester; M., W., F.*, 9 *to* 12; *four credits.* Dr. MILLER.

115. Mammalian Embryology. The development of the pig is studied by means of dissection and the use of microscopic preparations. Human embryology is studied from sections, special preparations, and models. *Second semester; S.*, 8 *to* 12; *two credits.* Dr. BARDEEN.

121. Human Anatomy. In this course a thorough training is offered in the dissection of the human body, and in descriptive human anatomy. *Throughout the year; daily* 8 *to* 5:30; *at least* 12 *hours' laboratory per week required; six credits per semester.* Dr. BARDEEN.

122. Topographical Anatomy. A study of frozen sections and special preparations. *Second semester; W., F.,* 1:30 *to* 4:30; *three credits.* Dr. MILLER.

123. Special Human Anatomy. Those qualified to do independent work may make special arrangements for the study of human anatomy.

126. Neurology. This course consists of dissection of the human brain, and a study of the microscopic anatomy of the central nervous system and sense organs. *Second semester; Tu., Th.,* 1:30 *to* 4:30; *three credits.* Dr. MILLER.

130. Advanced Work in Anatomy. Opportunity for advanced study in the field of human and comparative anatomy, gross and microscopic, in embryology and experimental morphology, and in laboratory technique is offered to properly qualified students. This work will be done under the direction of various members of the staff.

131. Historical Seminary. This meets bi-weekly for the study of the history of anatomy and related subjects. *One credit.* Dr. MILLER.

For Graduates

235. Investigation under Direction. To qualified students the department is prepared to offer problems for investigation and training in methods of research. Special arrangements for this work may be made with the individual members of the staff.

240. Independent Investigation. The department will welcome independent investigators who wish to make use of its facilities for conducting research in anatomy.

BACTERIOLOGY AND HYGIENE

PROFESSOR RAVENEL; ASSOCIATE PROFESSOR FROST; ASSISTANT PROFESSOR FULLER; MR. NELSON; MISS ARMSTRONG, MR. NEUMANN, DR. STOVAL.

For Undergraduates

1. General Bacteriology. *Repeated each semester; lectures, M.*, 3:30; *laboratory work four hours a week; three credits.* Dr. FROST, Mr. FULLER, Mr. NELSON, Mr. NEUMANN, Miss ARMSTRONG.
3. Thesis Work. Dr. RAVENEL, Dr. FROST.
7. General Hygiene. *First semester; one credit.* Dr. FROST.

For Graduates and Undergraduates

102. Medical Bacteriology. This course, which is especially designed for medical students, considers the bacteria and protozoa that are especially concerned in the production of disease processes. *First semester; M., F.*, 8; *Tu., W., Th.*, 8 *to* 11; *five credits.* Dr. RAVENEL, Dr. STOVAL.
104. Topical Work in Bacteriology. Dr. RAVENEL, Dr. FROST.
105. Research Work in Bacteriology. Dr. RAVENEL, Dr. FROST.
108. Biology of Water Supplies. Lectures and laboratory work. *Second semester; three credits.* Dr. RAVENEL, Mr. FULLER.
111. Immunity. Includes a study of the phenomena and theories of immunity in general as well as the various infectious diseases. Lectures and reports. Open only to advanced students. *First semester; one credit.* Dr. RAVENEL.

111a. Laboratory Course in Immunity. This is an experimental course and includes a study of cytotoxins, agglutinins, precipitins, toxins, antitoxins, opsonins, etc. *First semester; two or more credits.* Dr. FROST.

112. Pathogenic Protozoa. This includes a study of the most important of the protozoa known to cause human and animal diseases. Open only to advanced students. Lectures, demonstrations, and reports. *Second semester; one credit.* Dr. FROST.

140. Journal Club for instructional force and advanced students. Meets every second week throughout the year.

CLINICAL MEDICINE

PROFESSOR EVANS; ASSOCIATE PROFESSOR VAN VALZAH, DR. MIDDLETON, DR. MORRIS, DR. RINKER, DR. MOORE.

101. Clinical Diagnosis. *Normal and pathological clinical diagnosis. Second semester; lectures, Tu., Th.,* 8; *demonstration Tu., Th.,* 9 *to* 11; *three credits.* Dr. EVANS, Dr. MORRIS.

102. Clinical laboratory diagnosis: Examination of urine, blood, gastric contents, feces, sputum, and exudates in pathological conditions. *Tu., Th.,* 11; *one-half of semester; one credit.* Dr. MIDDLETON, Dr. MOORE.

103. Minor surgery and bandaging; demonstration of the practical application of the principles of asepsis, and antisepsis; of bandaging and treatment of injuries and inflamations. *Tu., Th.,* 11 *one half semester; one credit.* Dr. VAN VALZAH, Dr. RINKER.

104. Advanced work in clinical diagnosis and in experimental medicine. Serum diagnosis, vaccine therapy. Dr. EVANS and members of the staff.

PATHOLOGY

PROFESSOR BUNTING; MR. NICKSON.

Courses 101 and 103 are open to students who have successfully completed courses in histology and embryology. Course 101 is required of medical students.

101. General Pathology. The principles of general human pathology and the essentials of pathological anatomy. The laboratory exercises are devoted mainly to a study of pathological histology and to demonstrations of gross morbid specimens. *Second semester; M., W., F., S.,* 8 *to* 12; *six credits.* Dr. BUNTING.

103. Experimental Pathology. In this course by suitable experiments the work of course 101 is supplemented and elaborated. *Second semester; M.,* 1:30 *to* 4:30; *two credits.* Dr. BUNTING.

104. Advanced Courses. To a limited number of students who have completed course 101 or its equivalent, opportunity is offered for advanced work in pathology under the direction of Dr. BUNTING.

105. Journal Club. In conjunction with the departments of physiology and pharmacology, the recent literature of medical science is reviewed and discussed. *Throughout the year; Tu.*, 10.

PHARMACOLOGY AND TOXICOLOGY

PROFESSOR LOEVENHART; DR. PIERCE.

Elementary and advanced courses in pharmacology and toxicology are offered in this department. For the elementary courses a previous training in physiological chemistry and physiology is required. The advanced courses are open to those who have had adequate elementary training.

101. Toxicology. Lectures on the general action of toxic drugs, on diagnosis of poisoning, treatment, and the mode of conducting an autopsy when the tissues are to be subsequently examined chemically in medico-legal cases. *First month, first semester; Tu., Th.*, 11, *W.*, 1:30; *one credit when accompanied by course* 2. Dr. LOEVENHART.

102. Toxicology. Laboratory course. A chemical study of the principal volatile poisons, the alkaloids, the glucosides, and the metallic poisons. Special attention is given to the chief tests for the identification of these poisons. *First month, first semester; Tu., W., Th.*, 1:30 *to* 4:30. Dr. LOEVENHART, Dr. PIERCE.

104. Pharmacology. Lectures on the chemistry, the pharmacological and toxicological actions and the therapeutic uses of the chief medicinal drugs. Practice in prescription writing. From the conclusion of course 101 to the end of the first semester. *Tu., Th.*, 11, *W.*, 1:30; *two credits.* Dr. LOEVENHART, Dr. PIERCE.

105. Pharmacology. Laboratory course. Experimental studies on the action of drugs. *From conclusion of course* 102 *to the end of the semester. Tu., W., Th.*, 1:30 *to* 4:30; *two credits.* Dr. LOEVENHART, Dr. PIERCE.

108. Advanced Work. Those qualified to undertake advanced work and research in pharmacology and toxicology may make arrangements for conducting such work under the supervision of Dr. LOEVENHART.

112. Independent Investigation. To anyone qualified to carry on work of this character the facilities of the laboratory are available.

116. Journal Club. A meeting of the Journal Club is held weekly. Advanced students will be expected to report from time to time upon current papers dealing with pharmacology and toxicology. *Throughout the year; Tu.*, 10.

PHYSIOLOGY AND PHYSIOLOGICAL CHEMISTRY

PROFESSOR EYSTER; ASSISTANT PROFESSORS BRADLEY, MEEK; DR. DAWSON, DR. MORSE.

The following courses are designed especially for students studying medicine. Course 104 is open only to those who have had a previous training in general and organic chemistry (courses 1 and 120), physics (course 1) and general biology (course 1). As a preparation for course 105, comparative anatomy, histology, and neurology (anatomy 105, 110 and 126), and course 104 are recommended.

104. Physiological Chemistry. (a) Lectures. These give a brief summary of the province of physiological chemistry. (b) Laboratory course. *Second semester; M., W.*, 8 *to* 11; *F.*, 8 *to* 12; *four credits.* Dr. BRADLEY.

105. Physiology. Lectures and demonstrations. *Second semester; M., W.*, 11; *two credits.* Dr. EYSTER, Dr. MEEK.

106. Physiology. (a) Lectures and demonstrations. *First semester; M., W., F.*, 11; *three credits.* (b) Laboratory work. *First semester; M., F.*, 8 *to* 11; 1:30 *to* 4:30; *four credits.* Course 105 is prerequisite. Dr. EYSTER, Dr. MEEK.

For Graduates

208. Advanced Laboratory Course in Physiology. This course is designed primarily for teachers of animal physiology as well as for physicians and students of medicine who desire a wider experience in experimental physiology than can be gained in courses 105 and 106. The instruction is given individually and may involve undertaking a definite investigation. Dr. EYSTER.

210. Advanced Laboratory Course in Physiological Chemistry. This course corresponds to course 208.

THE SCHOOL OF MUSIC

LOUIS A. COERNE, Director, Professor of the History and Science of Music.

GENERAL ANNOUNCEMENT

It is the purpose of the School of Music to furnish facilities for the study of music in all of its branches, theoretical or practical. Instruction is offered in aesthetics, history of music, harmony, counterpoint, instrumentation, composition, methods in public school music, ensemble, orchestral and choral practice; and in voice culture, pianoforte, organ, violin, and all orchestral and band instruments. In the study of instruments or singing (voice culture), private and individual instruction only is given.

The general classes in harmony, counterpoint, instrumentation, musical composition, appreciation of music, masterpieces of music, history of music, methods in public school music, principles of music education, ensemble, orchestral and choral music, may be taken as electives by students of the College of Letters and Science, freshmen excepted, and credit is given on the same basis as for other collegiate studies. These credits to students of the University other than students of the School of Music are limited to twenty. These classes are likewise open to students of other schools and colleges of the University without extra fees.

Students of the School of Music not otherwise connected with the University are admitted to these classes on the payment of the usual incidental fee charged to students of the College of Letters and Science (12 per semester).

Advanced instruction in pianoforte, organ, voice culture, and violin may be taken as electives by juniors and seniors of the College of Letters and Science, and credit, not to exceed a total of ten semester hours, is given on the same basis as for other collegiate studies.

Special instruction in vocal or instrumental music may be taken by students not otherwise connected with the University, and such students are not required to pay the incidental fee required of all University students, but they must be able to satisfy the usual entrance requirements.

Special students, twenty-one years of age, are admitted to the School of Music, under the regular provisions of the University, as "Adult Special Students."

Special students, under twenty-one years of age, who have unusual musical talent, may, in exceptional cases, be admitted to the School of Music on the recommendation of the faculty of the School, although they may not be able to fully satisfy the entrance requirements.

Students wishing to enter the School of Music will apply to the Registrar, Room 158, University Hall.

A detailed statement of musical courses will be found under Music in the College of Letters and Science.

THE COURSE OF STUDY, PURSUANT TO THE DEGREE OF GRADUATE IN MUSIC

PROFESSOR COERNE (chairman); ASSISTANT PROFESSOR LOCKE; MISS CONLON, MISS EASTMAN, MR. JONES; Instructors in Applied Music; Instructors in required and elective subjects in the College of Letters and Science, and other colleges.

MUSICAL REQUIREMENTS FOR ENTRANCE

Organ

No previous knowledge of organ playing is required, but the student must be well grounded in pianoforte playing, must possess a correct technique, and be able to read plain four-part music.

Pianoforte

Applicants for admission will be expected to play music of the grade of Mozart's *Sonata* in D *major No.* 3, Peters Edition; Loeschhorn, *Op.* 52 and *Op.* 66; Bach, *Little Preludes.*

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.

Voice Culture

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

The course in applied music covers four years, two half-hours of instruction per week, or the equivalent, in organ, pianoforte, violin, or voice culture, and includes the study of the classic, romantic, and modern schools.

COURSES OF INSTRUCTION

FRESHMAN YEAR

First Semester—Applied Music: 2 half-hours of instruction and not less than 6 hours' practice per week, 2 credits; Theoretical Subjects: Theory of Music 1; Ear-training and Sight-reading 11, 2 credits; Elementary Harmony 5, 3 credits; English 1, 3 credits; *French, German or Italian, 4 credits; Physical Education. Total: 14 credits. *Second Semester*—Applied Music: 2 half-hours of instruction and not less than 6 hours' practice per week, 2 credits; Theoretical Subjects: †Theory of Music 2; Ear-training and Sight-reading 11, 2 credits; Elementary Harmony 5, 3 credits; English 1, 3 credits; French, German, or Italian, 4 credits; Physical Education. Total: 14 credits.

SOPHOMORE YEAR

First Semester—Applied Music: 2 half-hours of instruction and not less than 6 hours' practice per week, 2 credits; Theoretical Subjects: Ear-training and Sight-reading 21, 1 credit; Advanced Harmony 61, 2 credits; Appreciation of Music 71, 2 credits; Eng-

* French 1, 4, 10. German 1a to 3b. Italian 101.

† It is recommended that this course be taken in the second semester of either the freshman or the sophomore year, since it is required for graduation. It counts as a two-credit elective.

lish 30 or other elective in English 3 credits; French, German, or Italian, 4 credits; **Elective, 2 credits; Physical Education. Total: 16 credits. *Second semester*—Applied Music: 2 half-hours of instruction and not less than 6 hours of practice per week, 2 credits; Theoretical Subjects: Ear-training and Sight-reading 21, 1 credit; Advanced Harmony 61, 2 credits; Masterpieces of Music 72, 2 credits; English 30, or other elective in English, 3 credits; French, German, or Italian, 4 credits; ††Elective 2 credits; Physical Education. Total: 16 credits.

JUNIOR YEAR

First Semester—Applied Music: 2 half-hours of instruction and not less than 6 hours of practice per week, 2 credits; Theoretical Subjects: Counterpoint 65, 2 credits; History of Music 75, 2 credits; Physics, Course in Acoustics, 2 credits; English, French, German, or Italian Literature, 3 credits; Elective, 4 credits. Total: 15 credits. *Second Semester*—Applied Music: 2 half-hours of instruction and not less than 6 hours of practice per week, 2 credits; Theoretical Subjects: Counterpoint 65, 2 credits; History of Music 76, 2 credits; English, French, German, or Italian Literature, 3 credits; Elective, 6 credits. Total: 15 credits.

SENIOR YEAR

First Semester—Applied Music: 2 half-hours of instruction and not less than 6 hours of practice per week, 2 credits; Ensemble Playing or Singing 85, 2 credits; Theoretical Subjects: Composition 101 or Instrumentation 111, 2 credits; Thesis or Recital, 2 credits; Elocution (Public Speaking 12a), 3 credits; Elective, 4 credits. Total: 15 credits. *Second Semester*—Same as First Semester. Total: 15 credits. Total for four years: 120 credits.

All candidates for the degree of Graduate in Music are required to pursue their studies in accordance with the above schedule.

** The following courses are recommended as follows: Astronomy 1, Biology 1, Chemistry 1, Education 13, Fine Arts 1; Freehand Drawing 1, Geology 1, 3, and 4, Greek A, Greek 1, 5 and 10, Latin A, Latin 1 and 2, Mathematics 1 and 2, Physics 1, Psychology 1 (Courses in Home Economics cannot be elected before the junior year.)

†† See second footnote on previous page.

Voice students are subject to the following exceptions: *First*, membership in the Choral Union is obligatory, unless excused by the director. *Second*, at least two years of pianoforte study are required in addition to the prescribed work in voice, but the second year of pianoforte study is substituted for elective in the second year. *Third*, Counterpoint, Composition, and Instrumentation are not required.

Organ students are subject to the following exception: Those not sufficiently proficient may be required to take work in pianoforte during the first and second years, this to be decided by the instructor and the director.

Violin students are required to take two years of pianoforte study in addition to the prescribed work in violin, and may substitute those credits for electives.

One hundred and twenty credits are required for graduation. There is opportunity for a liberal choice of electives in addition to the required studies enumerated above. These may be chosen from other courses offered by the School of Music, or by other departments of instruction in the University on consultation with the director or an adviser appointed by him.

Students must prove their efficiency before their graduation either by giving a recital or writing a thesis on a given topic. Students are allowed a choice of these alternatives on consultation with the director or an adviser appointed by him. Two credits are allowed for either recital or thesis. The latter is subject to the regulations under Theses, University Catalogue, 1913–1914.

Required hours for graduation: 15 hours (each counted as one credit) per week for four years, but these may occasionally be reduced to 14 hours or increased to 16 hours for a single semester, according to the number of hours offered in a particular subject. No student is required to take more than 120 credits (hours).

DEPARTMENT OF PUBLIC SCHOOL MUSIC

Professor Dykema (chairman); Professor Henmon; Miss Conlon, Mr. Jones.

Associated Courses:—Professor Coerne; Assistant Professor Locke; Miss Eastman; and Instructors in required and elective subjects in the College of Letters and Science.

General Course for Grade and High School Teachers

This course is designed for teachers who expect to combine the teaching of other branches with the subject of music, in grade and high schools. The class meets twice a week throughout the year. The work consists of a study of the technical points to be presented in the school and the practice of songs suitable for school use. This course is of value to those who expect to teach in the public schools or who wish to conduct high school choruses, and includes training in conducting. The course is open to University students without an additional fee. Persons not in the University are admitted on the payment of the incidental fee of $12. (Collegiate Course 31, *M.*, *W.*, 9; *two credits.*)

Course for Supervisors of Music in Schools

This is a two-year course designed for those who wish to fit themselves for the supervision of music in the public schools. Classes are held for the consideration of the following work: rote songs and their application to school work; the elements of music as presented in the grades; study of the child voice; the supervisor's problems and how to meet them; study and interpretation of school songs; outlining of material; music in the high school.

Students regularly enrolled in the Supervisor's Course will be allowed one credit per semester for work in pianoforte, and one credit per semester for work in voice culture, under the provisions of Electives.

Students who, upon entering, do not show suitable proficiency in pianoforte playing or singing (voice culture), will be required to take instruction in one or both at the discretion of the director and the chairman of the department of Public School Music.

Students are required to take from 14 to 16 hours per week in recitations, lectures, etc., making 30 credits for the year and 60 credits for the course.

Membership in the Choral Union is obligatory, and is not counted as an elective credit.

In the second year, not later than June 1st, all candidates for graduation must submit an original outline covering one of the standard textbook series. This work is subject to the regulations under Theses, University Catalogue, 1913–1914.

A Supervisor of Music Certificate is granted on the completion of the course. Students expecting to proceed to the degree of Bachelor of Arts must satisfy the requirements for that degree. The requirements for admission to the Supervisors' Course are the same as for all other courses in the University.

The required work is as follows:

FIRST YEAR

First Semester—Methods 41, 3 credits; Practice 42, 1 credit; Applied Harmony, Ear-training and Sight-reading 43, 4 credits; General Education 44, 2 credits; Appreciation of Music 71, 2 credits; English 1, 3 credits; Physical Education. Total: 15 credits.

Second Semester—Methods 41, 3 credits; Practice 42, 1 credit; Applied Harmony, Ear-training and Sight-reading 43, 4 credits; General Education 44, 2 credits; Masterpieces of Music 72, 2 credits; English 1, 3 credits; Physical Education. Total: 15 credits.

SECOND YEAR

First Semester—Methods 51, 2 credits; Practice 52, 2 credits; Ear-training and Sight-reading 21, 1 credit; Advanced Harmony 61, 2 credits; History of Music 75, 2 credits; *Elective, 6 credits; Physical Education. Total 15 credits. *Second Semester*—Methods 51, 2 credits; Practice 52, 2 credits; Ear-training and Sight-reading 21, 1 credit; Advanced Harmony 61, 2 credits; History of Music 76, 2 credits; Elective, 6 credits; Physical Education. Total: 15 credits. Total for two years: 60 credits.

Special State Certificate

Students satisfactorily completing the Two Year Course for Supervisors of Music will be entitled to a recommendation to the State Board of Examiners to receive a special state license to teach music in the public schools of the state. This recommenda-

* The following courses are recommended as electives: Astronomy 1, Biology 1, Chemistry 1, Education 13, Fine Arts 1, Freehand Drawing 1, French 1, 4, and 10, Geology 1, 3, and 4, German 1a to 3b, Greek A, Greek 1, History 1, 5, and 10, Italian 101, Latin A, Latin 1 and 2, Mathematics 1 and 2, Physics 1, Psychology 1. (Courses in Home Economics cannot be elected by second year students expecting to proceed to a baccalaureate degree.)

tion will be issued by the Director of the Course for the Training of Teachers (Dr. E. C. Elliott, 123 University Hall), providing:—

(a) That the student registers in the Course for the Training of Teachers not later than December 1st of the first year of residence.

(b) That the student has earned the following credits as electives: Philosophy 1 (Psychology), *three credits;* Education 13 (Principles of Education), *three credits.*

(c) That the student presents a statement from the Director of the School of Music as to general fitness for teaching.

Public School Drawing

Students who take the two-year Supervisors' Course will find it to their advantage to devote some attention to preparation for the teaching of drawing. For this purpose the following elective courses in the Department of Manual Arts are available: Course 1, Freehand Drawing and Perspective *(first semester);* Course 1a, Cast Drawing, Water Color Rendering *(second semester);* Course 2, Mechanical Drawing *(throughout the year).*

INSTRUCTION IN APPLIED MUSIC

Pianoforte: Mr. Locke, Miss Regan, Mrs. Sandberg.
Voice Culture: Miss Bergman, Miss Conlon, Mrs. Sanders.
Organ: Miss Eastman.
Violin and Viola: Mr. von Geltch.

Orchestral Instruments

Further instruction in Applied Music, though without credit, is offered in flute, oboe, clarinet, bassoon, saxophone, French horn, trumpet, cornet, trombone, bass-tuba and all forms of brass instruments for bands, instruments of percussion, violoncello, and double-bass.

Violoncello and Double-Bass: Mr. Mann.
Wood-Wind Instruments: Mr. Saugstad.
Brass Instruments: Mr. Adams, Mr. Mann.

Orchestra

Mr. Mann, Mr. Dykema.

The University orchestra is composed of about sixty-five of the students of the University. The purpose of the organization is the study of the larger classical forms, as well as the accompaniment of representative choral works in coöperation with the Choral Union. In addition to performances at convocations and at student gatherings, one or more orchestral concerts as well as concerts with soloists, chorus, and orchestra are given each year. Rehearsals are held weekly in Music Hall from October to May. Membership is open to the entire student body, including graduate students, provided they possess sufficient knowledge of any orchestral instrument to pursue the work profitably. After two semesters' connection with the orchestra a student may receive a credit of one unit-hour for each of the two following semesters. This work is catalogued as Collegiate Course 91.

Band

Mr. Mann.
Mr. Saugstad, Mr. Adams.

The Regimental Band, consisting of two sections of about sixty and thirty-five men, is open to all students possessing the necessary qualifications. The band represents one of the most important musical activities at the University, and gives some fifty performances each year,—in the concert hall, at dress parade, and at athletic contests. Each section rehearses in Music Hall twice a week throughout the year. Freshmen and sophomores belonging to the band receive credit for military drill. Students who desire to join should confer with the bandmaster.

Choral Union

Mr. Dykema.

The Choral Union is open to all members of the University interested in studying and adequately presenting *a capella* part songs, oratorios, and standard choral works with orchestral accompaniment. Citizens of Madison are cordially invited to be-

long to the organization. There is no membership fee. Two or more public performances are given each year. Rehearsals are held weekly in Music Hall from October to May. Membership is obligatory for students at the School of Music specializing in voice culture or in public school music, unless excused by the director.

This work is catalogued as Collegiate Course 95, and is open as an elective to students of *all* schools and colleges. University credit of one unit-hour for the whole year is granted at the end of the season. Freshmen are eligible for membership, though without credit for the first year.

University Glee Club

MR. JONES.

The University Glee Club is an organization of twenty-four men. This club, together with the Mandolin Club, makes at least one extensive tour during the school year. Vacancies are filled by competitive trial, and membership is open to the entire student body, including graduate students.

University Girls' Glee Club

DR. COERNE.

The University Girls' Glee Club is an organization of thirty-two women. While this club gives no out of town concerts, frequent public appearances are made locally. Vacancies are filled by competitive trial, and membership is open to the entire student body, including graduate students.

RECITALS AND CONCERTS

A. Artists' Recital Series

The Artists' Recital Series consists of an annual course of recitals devoted to chamber music in which educational as well as artistic values are emphasized. In this series are included one or more annual "exchange concerts" with representative universities and schools of music, thereby bringing the respective institutions into closer touch.

Students enrolled in the School of Music are charged an incidental fee of fifty cents each semester (payable at the time of registration) which entitles them to attend all these recitals.

The privileges of Student Season Tickets at $1.00 for the entire season are not confined to students of the School of Music alone, but are available to *all* students of *all* schools and colleges of the University. They may, if they so desire, also purchase semi-season tickets at 50 cents per semester.

Season tickets at moderate expense are also available to the general public.

These funds are reserved for the purpose of partially defraying the expense of the series.

B. The Choral Union Concerts

In December the Choral Union presents a Christmas program of selections appropriate to the season. In the spring a festival of three or more concerts includes a much wider range of material.

C. The University Orchestra Concert

At least one concert is given annually by the University Orchestra. Representative programs include a classical symphony, a standard overture, a solo with orchestral accompaniment, and a number of other representative works. The University Orchestra also assists the Choral Union at one or more of its concerts.

D. Faculty Recitals and Lectures

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

E. Student Recitals

Student recitals, free to all students of the University and open to all others by invitation, are held at frequent intervals throughout the collegiate year.

F. General Concerts

A course of instrumental and vocal concerts by artists of international reputation is held annually in the University Armory. Both season and single tickets are available.

Frequent concerts are also given by the University Band, the glee clubs, and by student organizations interested in musical dramatics.

Equipment

The School of Music is equipped with a large concert auditorium, lecture halls, twelve teaching rooms for applied music, twelve student practice rooms, a two-manual organ, twenty-four pianos, a large number of orchestral and band instruments, two electric piano-players together with an auxetophone, a victrola, and a stereoptican for classroom demonstration, a pianola and two victrolas for laboratory work, and further musical accessories.

An adequate reference library of music and musical literature is established at the School as supplement to the books available at the University Library.

TUITION FOR THEORETICAL SUBJECTS IN MUSIC

Resident Tuition	Free
Non-resident tuition, per semester	$50 00
Incidental fee for all students, per semester	12 00

All students of the School of Music who are studying for the degree of Graduate in Music or for the Supervisors of Music Certificate must pay the incidental fee of $12 a semester, but neither the incidental fee nor non-resident tuition is required of students taking only applied music in private instruction. Persons who are members of other schools and colleges of the University may take the theoretical courses in music without charge

TUITION FOR APPLIED MUSIC

(All Branches)

Semester of Eighteen Weeks, Private Instruction Once a Week

½ Hour of Instruction	$20 00
1 Hour of Instruction	36 00

Semester of Eighteen Weeks, Private Instruction Twice a Week

½ Hour of Instruction	$36 00
1 Hour of Instruction	72 00

NOTE.—Students regularly enrolled in the university orchestra or band are entitled to half rates for tuition in stringed instruments, wood-wind, or brass.

Other Expenses

Piano practice, each hour daily, per semester	$3 00
Organ practice, each hour daily, per semester	9 00
Artists' Recital fee, per semester	50

Rules and Regulations

The collegiate year is divided into two semesters of approximately eighteen weeks each, but the tuition for applied music may be paid by half-semester if desired. All fees are payable in advance at the office of the Bursar of the Regents. Admission to membership in the classes is not permitted until the fees are paid. No deductions are made for absences except in cases of protracted illness, when a rebate of one half the fee for the time lost will be granted.

Students enrolling at any time previous to the fifteenth day of any semester will be charged the full fee for that semester. Students enrolling thereafter may receive some reduction at the discretion of the director.

GENERAL INFORMATION

No student is expected to take part in any public musical performance without the consent of his instructor and the director.

Students, who by reason of deficient musical ability, neglect of study, or any other valid reason, fail to make satisfactory progress, may be dropped from the classes.

The School of Music Calendar is the same as that of the University.

In addition to the numerous practice pianos that are available at the School, pianos may be rented from local dealers at from three to six dollars a month.

Students in Applied Music may enter at any time.

Students will register at the office of the Registrar of the University.

The office of the Director in Music Hall at the University will be open for several days before the opening of each half semester for the reception of students and assignment of courses. After the opening of the University the Director may be found at Music Hall from 11 to 12:30 and from 2:30 to 3:30 daily, Saturdays excepted.

For further information address

L. A. COERNE,
Director, School of Music,
The University of Wisconsin,
Madison, Wis.

THE WASHBURN OBSERVATORY

GEORGE C. COMSTOCK, DIRECTOR AND PROFESSOR OF ASTRONOMY;
ALBERT S. FLINT, ASTRONOMER; EDNA M. HILL, CLERK.

The Washburn Observatory was established in the year 1878 through the munificence of the late Gov. 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 that have been cultivated may be specified the measurement of the positions and motions of the heavenly bodies, the discovery and measurement of double stars, the investigation of variable stars, the study of changes of latitude and the amount and character of the atmospheric refraction, the determination of the amount of the aberration of light, problems of stellar color, proper motions of faint stars, and a systematic investigation of the parallaxes of all accessible stars which have large proper motions.

The principal instruments of the observatory are:

An equatorially mounted telescope of 15½ inches aperture, constructed by Alvan Clark & Sons, and provided with graduated circles, driving clock, a filar micromter, double image micrometer by Steinheil, a spectroscope, astro-photometer, and a very complete set of eyepieces; a meridian circle, by A. Repsold & Sons, of Hamburg, with collimators, transit micrometer, and the usual accessories of such an instrument. The objective of the instrument was made by the Clarks, and has an aperture of 4.8 inches and a focal length of 58 inches. The circle is graduated to 2 minutes of arc. For several years this instrument has been employed for an extensive series of determinations of stellar parallax now approaching completion. There are also a sidereal clock by Höhwü, of Amsterdam, two mean time clocks by Howard, of Boston, a chronograph, by Fauth & Co., of Washington and a printing chronograph by Gaertner.

In the Students' Observatory are mounted a six-inch equatorial telescope, by Alvan Clark & Sons, and a transit instrument of the broken telescope type, by Bamberg. These instruments, while primarily intended for instruction, are well adapted to and are employed for certain classes of original work. In particular, the equatorial telescope has been provided with reflecting prisms (Loewy), and employed as one of the principal instruments of the Observatory in an investigation of the refraction and the constant of aberration. The Bamberg instrument is used for latitude determinations by the Talcott method and for the time service of the Observatory. The Observatory also possesses a considerable number of subsidiary instruments, such as portable telescopes, spectroscopes, photometers, chronometers, sextants, an engineer's transit, an altazimuth, a universal instrument of the German type, a personal equation machine, a spherometer caliper, seismoscopes, photographic apparatus, and a complete set of meteorological instruments.

The Woodman Astronomical Library, established in connection with the Observatory, and supported from the income of a fund given by the late Cyrus Woodman, Esq., possesses a large and valuable collection of works upon astronomy and kindred subjects.

By provision of law the results of important investigations conducted at the Washburn Observatory are published by the state, and under this provision twelve volumes, representing the more important work done at the Observatory, have been issued.

Students of sufficient technical attainments 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, or in the Bulletins of the University. For the courses of instruction in astronomy see Index, under Astronomy.

UNIVERSITY EXTENSION DIVISION

(The Extra-mural College)

The Extension Division of The University of Wisconsin constitutes the Extra-mural College of the University, and is therefore one of the seven coördinate colleges of the University with a Dean and faculty of its own.

The modern Commonwealth University recognizes three main functions: (1) that of teaching the properly qualified student who is admitted for resident instruction; (2) of carrying on original investigations, or research, and promoting the spirit of creative scholarship; and (3) of disseminating useful knowledge that has been accumulating through productive scholarship, to all classes of citizens, and of adapting it to their requirements as far as practicable.

For convenience and efficiency in administration, the state is divided into districts. In a central point of each is established an office or district headquarters, over which a district representative presides. Associated with him are district and traveling instructors, who give personal assistance and instruction to students who have need of such help, or conduct class groups for those pursuing correspondence-study work where that may be desirable.

Field organizers make known the instruction and other opportunities which are made available through the Extension Division, and organize the details of the work in the field.

THE ORGANIZATION

The work of the University Extension Division is divided into four departments as follows:

I. Correspondence-Study
II. Instruction by Lectures
III. Debating and Public Discussion
IV. General Information and Welfare

OBJECT

The object of this University in carrying on extension work is to serve the citizens of the commonwealth who are unable to attend established educational institutions, to stimulate and guide them in the pursuit of a higher and more effective education, to enable them to achieve more nearly the best things in life of which they are capable—in short, to build up an extra-mural university, which shall embrace the whole state and which shall have live, active members in every community in intimate connection with the mother institution.

The constant aim of the Regents has been to make the University the center of every movement which concerns the interests of the state—to give every man a chance to get the highest education possible at the smallest practical cost—to bring the University and the home in close touch.

HISTORICAL DEVELOPMENT

Step by step the University has broadened its field. In 1866 women were admitted. In 1885 Farmers' Institutes were established in connection with its College of Agriculture. A little later a Short Course in Agriculture was provided. In 1898 the Summer Session was opened for the admission of those who had not time or means to enter as resident students for the long term. To this was added, in 1900, the Summer School for Artisans and Apprentices. The culminating achievement is the establishment of the University Extension Division as an Extra-mural College.

CORRESPONDENCE-STUDY DEPARTMENT

PURPOSE

There exists in every community a considerable class of persons who are unable to adjust themselves to the formal system of education. Such persons have a claim upon the state for educational opportunities outside the formal regime. The Correspondence-Study Department serves the needs of men and women in this situation and offers effective individual instruction, which may be pursued in accordance with the requirements of each student in his own home.

TEACHING BY MAIL

The possibility of teaching by correspondence has been demonstrated by practical experiment. While such instruction lacks some of the advantages which resident study gives, it has compensating advantages of its own. In correspondence instruction, the teaching is personal and individual. Every student studies and recites the whole lesson, and comes in contact with the teacher as an individual, not as a member of a large class. Correspondence-study employs the spare time of the student, and gives him an interest beside his daily work. It can be done at home and thereby brings into the home a new and enlarging influence. Correspondence work, moreover, throws a man upon his own resources and makes him self-reliant and self-determining.

PLAN AND SCOPE

The University of Wisconsin provides through the Correspondence-Study Department, non-resident or home study instruction as follows:

I. Certain regular University studies which may, under approved conditions, be taken for credit toward a degree.

II. Advanced courses designed to help persons, graduates and others, in professional or practical life, to keep in touch with certain advancing conditions of science and knowledge.

III. High school and preparatory studies for those for whom the conventional institutions are not available or practicable.

IV. Vocational courses which supply knowledge and training that have a direct bearing upon advancement and efficiency in a given occupation.

V. Elementary and grammar school studies for those who require such instruction for practical purposes.

GENERAL BENEFITS

Persons who are benefited by correspondence-study may be divided into two main classes: 1st, those who have the taste, ability, and inclination to continue their education along such lines as will enrich their lives with a deeper culture, or enhance their opportunities or abilities within their chosen vocations or professions, or fit them for larger positions and services; 2nd,

that great class of wage-earners who cannot leave their employment to acquire training directed towards that greater proficiency and skill so much to be desired.

The first class may be roughly divided into (1) those who seek the services of the Correspondence-Study Department in keeping abreast of the times with reference to the advances in knowledge that relate to their profession or business, or it may be purely for purposes of general culture; (2) those who wish to acquire units of credit towards a university degree and (3) those who require preparation for entrance to the university.

The second class includes (1) those whom the necessity of earning a livelihood has taken from school before acquiring an elementary education; (2) those who have had the benefits 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.

The recognized need for more wide-spread training for people who work, demands that some form of education be provided for their benefit equivalent to that which may be gained in the schools and universities. To this end it is necessary not only to carry the educational opportunity to them wherever they may be, but frequently to arouse and stimulate their interest by demonstrating to them the value of increased fitness. Realizing the importance of such work for the future well-being of the people and for the prosperity of the country, as well as for the maintenance of democratic institutions, the Extension Division proposes to establish district centers through which the entire population of the state will be reached by university benefits.

INDUSTRIAL EDUCATION

The employees of business firms may be greatly benefited by training especially adapted to their work. Where a number of them are engaged in the same or similar studies, classes are formed and met by teachers at frequent intervals.

The method adopted for bringing the subject of correspondence-study work to employees is essentially as follows: The interest of the employer is first enlisted, after which the employee may be

approached under favorable conditions. The next step brings the men together to hear of the opportunity University Extension opens to them, how readily they may avail themselves of it, and the benefits to be derived. Every man who registers for a course of study is met at once by a teacher who learns in a personal interview the exact grade of work for which he is prepared. If large numbers are enrolled, they are grouped in classes of twenty, and in addition to written lessons, receive personal instruction from a teacher who meets them regularly. To a certain extent the classes are graded, and, where necessary, individual teaching is given until the student can take his place in a class.

The instructor engaged in this work gives his entire time to it. He is as familiar with the employee's labor as he is with the lesson text, and, therefore, can help the men to make practical applications of lesson to work.

LABORATORY WORK

Provision is made in connection with many correspondence courses, both in the advanced grade and in the vocational studies, by which laboratory practice forms a part of the instruction. In some courses, laboratory outfits are sent to the student from the university to be set up in his own home. In other cases special arrangements are made for short periods of laboratory practice at Madison. In some studies local branch laboratories will be established where local students may receive special instruction as the correspondence course proceeds.

THE MOTIVE

This system of instruction is designed for persons carrying on their own education. It is open to non-residents as well as to residents of the state of Wisconsin.

The present and contemplated work of the Correspondence-Study Department is designed to coöperate with and supplement existing educational agencies. By thus supplementing existing agencies there is established a vastly larger and more democratic instrument for extending the benefits of general and specialized education.

METHOD AND SYSTEM

PROCEDURE. The student who wishes to undertake correspondence-study should first select such course or courses as he may desire to take and send for an application blank. He should fill out the blank with information called for and return it, with the required fee, to the office of the Extension Division. The necessary textbooks, outfit, etc., may also be purchased through the Extension Division if the student so desires.

THE INSTRUCTION. Upon receipt of the application and fee, the first two lessons will be sent with instructions for study, methods of preparation, and directions for returning lesson sheets and reports. Each lesson 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.

BY WHOM PREPARED. These courses are prepared by the members of the university faculty, and each represents a definite amount of work corresponding to an equivalence of work done in residence at the university, or in the standardized schools of our educational system.

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 full five recitation-hour study per 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 per day, six days in the week. It is, however, the student's privilege to pursue his studies as rapidly as he is able.

THE LESSON. The unit course is divided into assignments. In some courses this assignment may call for but a single lesson report, but in other courses the assignment is divided into four, five 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 in coördination 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 conditions approved by the university.

REGULATIONS. 1. Students may begin correspondence courses at any time during the year.

2. For admission to the Correspondence-Study Department no preliminary examination is required. The student is required to fill out an application blank, giving such information as may be helpful in adapting the instruction to the personal needs of each student.

3. Students who undertake correspondence-study work for university credit must state this fact in advance and comply with all the requirements of the university.

4. For the benefit of the department it is desired that the applicant state fully the purpose he has in view in taking the work, and also in detail such educational advantages, training, or experience as he may have had. The department endeavors to meet the needs of the individual student by advice and suggestion, as well as by formal instruction, but whenever it finds that the course elected is not for the best interests of the student, it reserves the right to reject the application, or to advise change or discontinuance.

5. Correspondence students will be expected to complete a unit course within twelve months, two courses within fifteen months, three courses within eighteen months from date of registration.

6. During an instructor's vacation, a substitute will be provided to carry on such course or courses, if possible.

7. No fee is refunded because of a student's inability to enter upon or pursue a course for which he has once registered. If an application for instruction is rejected the fee is returned.

8. The fee for a full unit course of forty assignments is only twenty dollars. When the student registers simultaneously for more than one unit course he is eligible to a discount of twenty-five per cent. upon the amount of the fees in excess of twenty dollars. These fees are deliberately put upon the lowest operating basis.

Those who care to analyze the cost should bear in mind the fact that the correspondence student is usually engaged in a gainful occupation or profession, whereas the residence student

temporarily suspends his earning power. The correspondence student may also be said to be turning his leisure time into economic values by this method. These and many other factors contribute toward establishing this as an inexpensive system of achieving an education. It is individual instruction of the highest order, given under the most trustworthy conditions. The motive is public service, and profit is entirely eliminated.

UNIVERSITY CREDIT

1. Persons who have had the required preparation for admission to the university, will, upon satisfactory completion of a correspondence-study course designed for credit, be awarded a certificate of credit in the university.

2. The maximum credit granted for work done by correspondence-study, however, may not exceed one-half the unit 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 by some one designated by the university for that purpose.

4. Work taken for credit may not be done by any student while in attendance at any institution of learning.

5. In special cases credit may be allowed for correspondence-study courses of preparatory grade to satisfy partial entrance requirements to the university.

6. Credit to an amount not exceeding one-fourth of the unit hours required for graduation may be given at The University of Wisconsin to students of such other correspondence-schools or departments as may be designated by The University of Wisconsin. It is, however, required that such credits shall be subject to the same provisions as are made in The University of Wisconsin, and subject to the action of the accredited schools committee, or the advanced standing committee, as the case may require.

7. Credit records of correspondence-study work are filed in the University Extension 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.

8. All courses offered by the Correspondence-Study Department, whether taken for university credit or not, are on a uniform basis in reference to the amount of work covered. Courses which are satisfactorily completed have, therefore, a definite value and all students who successfully complete such courses will be awarded certificates of the grade in which the work is taken.

CORRESPONDENCE-STUDY COURSES

Many courses here listed involve university credit when desired by properly qualified students. Full and explicit information on any course will be supplied upon request.

Astronomy

DR. EATON.

Course 1. Popular Astronomy.

Bacteriology and Hygiene

ASSOCIATE PROFESSOR FROST.

Courses: 1. Principles of Elementary Bacteriology; 6. General Bacteriology.

Botany

PROFESSORS ALLEN and OVERTON; ASSISTANT PROFESSOR GILBERT.

Courses: 1. Description and Classification of Flowering Plants; 11. General Botany; 12. Morphology of Seed Plants; 2. General Morphology of Algae; 3. General Morphology of Fungi; 5. Plant Histology; 4. Morphology of Mosses and Ferns; 7. Drug and Food Products; 8. Trees and Shrubs.

Business Administration

ASSOCIATE PROFESSOR BUTLER; ASSISTANT PROFESSORS ELWELL, NEYSTROM; MR. FIELD, MR. KUECHENMEISTER, MR. LANGMAS, MR. READ, MR. TRENT.

General Organization of Business

Courses: 142. History of Business Organization; 143. National Organization of Business; 144. City and Town Promotion.

Types of Business Organization

Courses: 145. Individual Ownership; 146. Partnership; 147. Coöperative Industry; 148. Joint Stock Company; 149. Corporations; 150. Combinations and Community of Interest.

Industrial Management

Courses: 151. Personal Equations; 152. Plant Management.

Marketing Methods

Courses: 153. Sales, Purchase, and Shipping Methods; 154. Advertising Campaigns; 155. Credits and Collections.

Bookkeeping and Accounting

Courses: 128. Bookkeeping; 129. Accounting Principles; 136. Cost Accounting; 130A. Bookkeeping and Cost Finding for Printers.

Business Law

Courses: 115. Contracts; 118. Sales; 122. Commercial Paper; 124. Private Corporations; 198. Insurance.

Other Subjects

Courses: 159. Retail Selling and Store Management; 102. Commercial Correspondence; 114. Commercial Geography of the United States.

Chemistry

Professor Kahlenberg; Assistant Professor Krauskopf.

Courses: 1. Elementary Chemistry; 2 Qualitative Analysis.

Education

Professors Elliott, O'Shea; Associate Professor Starch; Mr. Clapp.

Courses: 1. Principles of Teaching; 2. The Development of Childhood and Youth; 3. Educational Psychology; 6. History of Modern Education; 51. Social Development and Education; 71. History of American Education; 81. Administration and Supervision of Education; 91. Conferences on Teaching Problems.

Electrical Engineering

Associate Professor Jansky; Assistant Professors Shealy, Shuster, Watson; Mr. Hills, Mr. Lehmann, Mr. Winning, Mr. Faber, Mr. Weaver, Mr. Bascom, Mr. Hogan.

Courses: 301. Mathematics; 302. Mechanical Drawing; 306. Elements of Mechanics; 307. Strength of Materials; 308. Mechanism; 309. Machine Elements; 310. Magnetic and Electric Circuits; 311. Dynamo Electric Machinery; 312. Theory of Alternating Currents; 313. Alternating Current Machinery; 314. Electric Lamps and Illuminations; 315. Heat; 316. Central Electric Stations; 317. Power Transmission and Distribution; 317a. Electric Wiring; 318. Telephones and Telephone Apparatus; 319. Meters and Metering; 320. Testing of Electrical Machinery; 321. Electric Railways; 322. Electric Batteries; 325. Compressed Air; 327. Air Brakes; 330. Electrical Engineering Mathematics.

English

Assistant Professors Bassett, Beatty, Pitman; Miss Bascom, Mrs. Van Dusen, Dr. Watt.

Courses: 1. Elementary English; 61. English Grammar; 2. English Composition, Intermediate; 3. High School English Classics; 63. Grammar Review and Elementary Composition; 102. Commercial Correspondence; 79. Review of English Composition; 81. Review of American Literature; 91. Review of English Literature; 62. Advanced English Grammar; 5. English Composition, A; 6. English Composition, B; 7. Advanced English Composition; 8. Elementary Technical Composition; 9. Advanced Technical Composition; 10. Composition of Public Addresses; 13A. Classical Lyric Poetry in English; 13B. Ancient Classical Drama in English; 16. The Short Story; 51. General Survey of English Literature, A; 52. General Survey of English Literature, B. 31. General Survey of American Poetry; 17A. Shakspere; 17B. Shakspere; 18. The Poetry of Tennyson; 19. The Poetry of Browning; 25. The English Novel in the Nineteenth Century; 35A. and 35B. Modern Drama; 4. The Teaching of English; 214S. Shakspere; 215S. Relation of Shelley to Byron.

French

PROFESSOR SMITH; MR. GALLAND.

Courses: 1. Elementary French, A; 2. Elementary French, B; 3. Intermediate French, A; 4. Intermediate French, B; 5. Technical French; 6. Elementary French Prose Composition; 7. Advanced French Composition; 8. Modern French Dramatists; 9. Modern French Novelists; 10. General Survey of French Literature.

Geology and Mineralogy

PROFESSORS LEITH, WINCHELL; ASSOCIATE PROFESSOR WHITBECK; ASSISTANT PROFESSOR MARTIN; MR. STEIDTMANN, MR. WILLIAMS, MR. BEAN.

Courses: 1. Mineralogy; 2. Economic Geology; 3. Physical Geography; 4. Elementary Geology; 5. Laboratory Work in Physical Geography; 6. Laboratory Work in Optical Mineralogy.

German

PROFESSOR HOHLFELD; MRS. JAMISON, MR. CHWOROWSKI.

Courses: 1. Elementary German, Part A; 2. Elementary German, Part B; 3. Intermediate German, Part A; 4. Intermediate German, Part B; 6. Scientific German; 7. Commercial German; 8. Critical German Prose; 9. Grammar Review; 12. German Composition; 19. Elementary Teachers' Course; 20. Advanced Teachers' Course; 25. Modern German Dramatists; 26. Modern German Novelists; 22. Schiller; 21. Goethe; 29. Goethe's Faust; 30. History of German Literature; 31. History of the German Language. Studies in Lessing, Heine, Uhland, and Modern German Poetry are also available. Courses in Gothic, Old High German, Middle High German, and Old Saxon will also be arranged.

Greek

PROFESSOR SMITH; ASSISTANT PROFESSOR PITMAN.

Courses: 1. Elementary Greek; 2 and 2A. Xenophon's Anabasis; 3. Homer's Iliad I–III or Odyssey VI–VIII; 6. Advanced Prose Composition; 13A. Classical Lyric Poetry in English; 13B. Ancient Classical Drama in English.

History

PROFESSORS DENNIS, FISH, MUNRO; ASSOCIATE PROFESSOR CHASE.

Courses. 1. United States History; 2. American History 1760–1830; 6A and 6B. English History; 8A and 8B. Modern European History; 12A and 12B. Medieval History; 20. Greek History; 21. Roman History.

Home Economics

MISS BINZEL; MISS TURNER.

Courses: 1. General Food Study; 2. Economic Problems in Food Study; 3. Dietetics; 5. Health; 8. The Home; 10. Sewing; 11. Study of Fabrics; 12. Muslin Garments; 13. Dressmaking; 20. General Survey of Home Economics; 21. Applied Design.

Italian

PROFESSOR SMITH; MR. GALLAND.

Courses: 1. Elementary Italian; 2. Reading in Italian.

Latin

PROFESSOR SLAUGHTER; ASSISTANT PROFESSOR PITMAN.

Courses: 1. Elementary Latin; 2. Caesar; 3. Cicero; 4. Virgil's Aeneid; 6. Advanced Prose Composition; 7. Livy: Books I and XXI; 10. Cicero: De Senectute; 12. Terence: Phormio and Andria; 13A. Classical Lyric Poetry in English; 13B. Ancient Classical Drama in English; 14. Horace: Odes; 15. Horace: Satires and Epistles; 16. Catullus; 17. Roman Mythology; 20. Cicero: Letters and Orations.

Mathematics

PROFESSOR SLICHTER; ASSISTANT PROFESSOR BURGESS; MR. SQUIRES.

Courses: 1 and 2. Elementary Algebra; 3. Plane Geometry; 4. Solid Geometry; 5. Plane Trigonometry; 6. University Algebra; 7. Analytic Geometry; 8. Elementary Calculus; 10. Advanced Arithmetic; 11. Practical Arithmetic; 11L. Lumber Measurements; 61. Arithmetic Review; 62. Ele-

mentary Algebra Review; 201. Shop Mathematics; 40. Algebra for Engineers; 41 and 42. Elementary Analysis; 44. Differential Calculus; 45. Integral Calculus; 51. Elementary Practical Mathematics; 56. Commercial Algebra; 65. Advanced Calculus; 66. Differential Equations; 67. Theoretical Mechanics; 68. Higher Algebra.

Mechanical Drawing

PROFESSOR PHILLIPS; ASSISTANT PROFESSOR MILLAR; MR. HILLS, MR. HOGAN.

Courses: 1. Elements of Mechanical Drawing, Part A; 2. Mechanical Drawing, Part B; 3. Descriptive Geometry; 4. Freehand Lettering; 203. Shop Sketching; 204. Shop Drawing; 205. Sheet Metal Drafting; 243. Wood Sketching; 251. Mechanical Drafting; 255. Machine Design.

Mechanical Engineering

PROFESSOR NORRIS; ASSISTANT PROFESSORS FABER, MILLAR, SHEALY; MR. BASCOM, MR. EDWARDS, MR. ELLIOTT, MR. FREY, MR. HILLS, MR. HOGAN, MR. LEHMANN, MR. WEAVER, MR. WINNING.

Courses: 201A. Shop Mathematics; 201B. Advanced Shop Mathematics; 203. Shop Sketching; 204. Shop Drawing; 205. Sheet Metal Drafting; 206. Elements of Mechanics; 207. Strength of Materials; 208. Mechanism; 209. Machine Elements; 210. Advanced Design; 215. Heat; 216 Steam Boilers; 217. Steam Engines; 219A. Gas and Oil Engines; 219B. Gas Producers; 219C. Gas Engine Theory and Design; 220. Test Methods; 222. Refrigeration; 223. Heating and Ventilation; 224. Power Plant Economics; 225. Compressed Air; 229. Electric Machinery; 230. Engine Running; 231. Fuels; 235. Principles and Practice of Plumbing; 243. Wood Sketching; 272. Cupola Practice; 274. Foundry Metallurgy; 281. Hydraulics.

Music

PROFESSORS COERNE and DYKEMA.

Courses: 5C. Elementary Harmony; 31C. Public School Music; 61C. Advanced Harmony; 71C. Appreciation of Music; 75C. History of Music; 97C. Community Music.

Pharmacy

Professors Fischer, Kremers, Kahlenberg; Assistant Professors Bradley, Denniston, Gilbert, Krauskopf; Mr. Lynn, Mr. Langenhan.

Courses: 1. Pharmacy, Part A and Part B; 3. General Chemistry, Part A; 5. Inorganic Preparations; 12. Qualitative Analysis; 10. Morphology and Classification of Flowering Plants; 15. Plant Histology; 30. Drug Assaying; 35. Physiological Chemistry; 40. Pharmaceutical Analysis; 45. Microscopical Examination of Food Products; 46. Microscopical Examination of Drugs; 50. Pharmacology; 51. Toxicology.

Philosophy

Assistant Professors Starch and Otto.

Courses: 1 General Psychology; 10. Ethics.

Physics

Associate Professor Jansky.

Courses: 1. High School Physics; 5 and 6. University Physics.

Political Economy

Professors Commons, Ely, Ross, Scott, Gillin, Hess; Mr. Trent.

Courses: 1. Elements of Political Economy; 2. The Labor Movement; 3. Transportation; 4. Socialism; 10. Elements of Money and Banking; 15. Social Psychology; 16. General Sociology; 17. Practical Sociology; 18. Criminology and Penology.

Political Science

Assistant Professor MacGregor.

Courses: 1. American Government and Politics; 1A. The American Judiciary; 1B. The American Executive and Executive Methods; 3. Party Organization and Management. 3A. American Legislatures and Legislative Methods; 4A. American Diplomacy; 4B. World Politics; 5A. American Constitu-

tional Law; 5B. International Law of Peace; 5C. International Law of War; 6. American Municipal and Civic Progress; 10. Municipal Government in Europe and the United States; 22. Rural Government.

Public Speaking

ASSOCIATE PROFESSOR O'NEIL.

Courses: 1. Elementary Speech Writing; 10. Composition of Public Addresses; 12. Argumentation.

Spanish

PROFESSOR SMITH; MR. GALLAND.

Courses: 1. Beginners' Spanish; 2. Elementary Spanish; 3. Intermediate Spanish; 4. Intermediate Spanish; 7. Don Quijote; 8. Don Quijote.

Structural Engineering

PROFESSOR TURNEAURE; ASSOCIATE PROFESSORS HOOL, SMITH, ASSISTANT PROFESSOR KINNE; MR. BASCOM, MR. FULLER, MR. HILLS, MR. LEHMANN, MR. THIESEN.

Courses: 401. Mathematics; 404. Mechanical Drawing; 407. Strength of Materials; 408. Elements of Structures, A; 409. Elements of Structures, B; 410. Roof Trusses; 411. Plate Girder Bridges; 412. Bridge Trusses, Part 1; 413. Bridge Trusses, Part 2; 415. Masonry Structures, A; 416. Masonry Structures, B; 417. Masonry Structures, C; 418. Reinforced Concrete Construction, A; 419. Reinforced Concrete Construction, B; 420. Reinforced Concrete Construction, C; 421. Steel Building Construction.

Surveying

ASSOCIATE PROFESSOR HOOL.

Courses: 1. Plane and Topographic Surveying.

Teachers' Reviews

ASSOCIATE PROFESSORS CHASE, FROST, JANSKY, WHITBECK; ASSISTANT PROFESSORS BEATTY, BURGESS; MRS. VAN DUSEN, MISS SCOTT.

Courses: 61. Arithmetic Review; 62. Elementary Algebra Review; 63. Grammar Review and Elementary Composition; 65. Geography Review; 67. United States History Review; 69. Civil Government; 71. Physiology and Hygiene; 73. School Management; 77. Physical Geography Review; 79. English Composition Review; 81. American Literature Review; 83. Cataloguing and Use of the School Library; 87. Physics Review; 89. English History Review; 91. English Literature Review.

INSTRUCTION BY LECTURES

PURPOSE

University Extension work is primarily educational. Therefore, this department counts it a greater service to the state to stimulate and encourage a hundred earnest learners, be they homemakers, teachers, bankers, or mechanics, than merely to amuse a thousand listeners. But the purpose and the appreciation of audiences vary widely. The character of lectures suitable for a study-group or evening classes is quite different from those adapted to mixed audiences. It is essential, therefore, that the lecture work be developed under an elastic system.

The system now used consists (1) of a University lecture, or a series of lectures. Again (2) some communities desire the single lecture, concert, recital, or reading program, 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 thereof.

The field covered by the lecture courses is a wide one, including topics in education, history, geography and travel, political economy, political science, sociology, business administration, the history and literature of ancient and modern peoples abroad,

including Greek and Roman, Scandinavian, German and English life and letters, the physical sciences, engineering branches, forestry, and physical training. The bulletins containing details of information will be sent on request.

STUDY CLUBS. The Department of Instruction by Lectures is ready to assist study clubs in every possible way. From time to time, the Secretary will visit the different parts of the state and aid the local centers in organizing or perfecting the organization of such clubs. When organized, the Extension Division will be of further assistance either through direct contact of some member of its staff with the class, or through supervision of the work of the class, or through a combination of both the foregoing methods.

UNIVERSITY CREDIT. Where the work of the study club is of a character approved by the faculty of the University, a certificate will be awarded to the members passing a satisfactory examination, which will have a recognized value on the University records, and which will be credited accordingly, should the holder ever study at the University.

CIRCUITS. If two neighboring communities, or two centers in the same community, engage the same lecturer for the same day or consecutive days, a circuit is established and the lecturer's expenses are divided between them. For example, a woman's club could arrange for a lecture in the afternoon and the school board of the same place could arrange for another in the evening.

TRAVELING LIBRARIES. The University Extension Division has in its work the coöperation of the Wisconsin Free Library Commission. The Commission possesses several thousand volumes which it sends in groups to the communities of the state that have no adequate library facilities. Requests for such libraries by University Extension centers will be gladly received by the Secretary, and will be met so far as resources of the Commission will permit. On some subjects it will not be possible to supply groups, for lack of material, and inquiry by correspondence before definite arrangements are made for lectures is advised in case it is desired to use traveling library groups in connection with the lectures.

STEREOPTICONS. For places in which a stereopticon is not available, arrangements can sometimes be made whereby one is furnished by the University, at the expense of the local center.

TEACHERS' CONVENTIONS AND INSTITUTES. The Extension Division will provide speakers for these meetings as far as the regular work of the University will permit.

COMMENCEMENT ADDRESSES. The University Extension Division can arrange for commencement addresses to be delivered by members of the University staff. The charges will be arranged in each case for the speaker desired through the Extension Division.

EXPENSES

LOCAL EXPENSES. These include hall rent, printing, advertising, etc., and the lantern and operator, where the lecture is illustrated.

UNIVERSITY CHARGES—LECTURERS' FEES. Full information concerning lecturers' fees will be supplied on application.

DEBATING AND PUBLIC DISCUSSION

PURPOSE

This department aims to arouse and stimulate among all classes of people an intelligent and active interest in important social, educational, and political problems. In the belief that there is no form of popular education that tends more essentially to the making of good citizens than study and discussion of live issues, this department collects and maintains a loan library, available upon application to residents of Wisconsin, issues bulletins, and keeps in touch by correspondence or personal interview with social centers and civic clubs, farmers', women's and business men's clubs, school and library boards, literary societies of educational institutions, particularly rural, state graded, county agricultural, county training schools, seminaries and academies, and similar organizations throughout the state.

BULLETINS

Several compact and useful guides have been issued as aids to debaters, including Debating Societies—Organization and Procedure; Principles of Effective Debating; How to Judge a Debate; Triangular Debating Leagues; and School Literary Societies.

The latter contains over fifty questions stated for debate. As aids to organizations, bulletins on Farmers' Clubs and Civic Clubs have been published.

FORMULATED QUESTIONS. The bulletins which formulate subjects for debate, giving brief historical facts and arguments, concluding with a selected classified bibliography, serve as an impetus to careful study and have proved helpful and time-saving. Such questions as the following have been thus presented: Annexation of Cuba and Independence of the Philippines; Closed vs. Open Shop; Commission Plan of City Government; Consolidation of Rural Schools and Free Text Books; Initiative and Referendum; Municipal Home Rule; The Recall; and Restriction of Immigration. These publications are sent free upon request to Wisconsin citizens, and upon receipt of list price, outside of the state.

LOAN MATERIAL

PACKAGE LIBRARIES. The collection of loan material for use of individuals or organizations includes not only package libraries on debatable subjects of practical and timely interest—those great questions which are being weighed by the nation or state as well as those of even closer appeal to the citizens which relate to the problems of one's own community—but also package libraries on subjects of general educational value. Mounted selected newspaper clippings, office-bound sections of periodicals, state and national documents, publications of organizations, copies of addresses, reprints, excerpts, books—in fact all forms of available material dealing fairly and comprehensively with the different phases of worth while subjects are accumulated by this department and placed at the disposal of residents of Wisconsin.

TO WHOM THIS WORK APPEALS

THE DEBATE. Debaters are making practical and effective use of the direction and assistance offered by this department. With the bulletins, suggested lists and package libraries, debating is proving more interesting, more popular and more truly educational. It is fast becoming an activity, enjoyable and worth while—whether it be in rural school or college, in farmers' club

or civic union, in social center or secret order. The constructive value of this work in the education of the youth for citizenship becomes at once apparent when one appreciates the service that is being rendered, not only in direction and stimulation, but also in the preparation of debates.

CLUB WORK. The striving for wider knowledge, for better social conditions, has fused thinkers into clubs, such as civic clubs, women's clubs, farmers' clubs, teachers' associations and parents' organizations. To aid these clubs is one of the purposes of the Extension Division. In addition to the bulletins this department lends bibliographies and study outlines and assists in planning programs. A large library of literature on municipal, social, educational, and political problems is available for the use of advancement associations and other bodies of affiliated citizens. The best material is selected, package libraries prepared and sent to club members to aid them in the preparation of papers or to furnish facts for an open discussion of some live issue.

ESSAYS; THEMES; ORATIONS. This Department further aids students in communities where local library facilities are meager or limited in the selection of subjects, for essays, commencement themes and orations, and places at their disposal package libraries to aid in the study and development of such subjects.

GENERAL INFORMATION AND WELFARE

PURPOSE

In recognizing the public obligation to establish and maintain institutions for higher education and for research, there is also implied the right of the citizens who contribute to the support of these institutions to a share in their fruits. Therefore, in a university which truly serves the commonwealth, there exists a proper place for a department of general information and welfare.

A CLEARING HOUSE

This department becomes thereupon the clearing-house through which all reasonable inquiries of the people of the state may receive consideration. The department also disseminates method-

ically, such information or knowledge as is of general service in the well-being, prosperity, and progress of a people.

The researches of government bureaus and commissions, of experiment stations and laboratories, of scientific institutions and associations, are too often imbedded in voluminous or technical reports to serve their full measure of usefulness. The results of this achievement and mastery should find an agency and a form for proper dissemination, which maintains all the essential facts, but adapts them and makes them available for untechnical and democratic needs.

Results of inquiry or research relating to food, hygiene, and sanitation, to the discoveries affecting the prevention and cure of disease, to economic, political, social, and ethical questions, to the problems of general and special education, to the conservation of resources, to agricultural, engineering, manufacturing, and commercial conditions, to recreation and social health, to child labor, to municipal problems, to the abatement of noise, dust, and smoke, to water supplies and garbage disposals, to the aesthetic requirements of life in country and in city, to home furnishing and decoration, to landscape design, to architecture, to music, and to art in general—these are among the topics in connection with which this department may render valuable public services.

METHOD

This department gathers informational literature, presents it in suitable form for distribution, and encourages its study and use. The department will also secure expert advisers for communities having special problems to solve.

On each of several specific lines of welfare a bureau is organized with an expert on that particular subject in charge. Of these are the Municipal Reference Bureau, the Civic and Social Center Bureau, the Health Instruction Bureau, and the Community Music Bureau.

MUNICIPAL REFERENCE BUREAU

City government touches the citizen at more points and is of more vital importance to his interests, business and personal, than any other government with which he comes in contact. It collects more taxes from him and expends more money. Its

problems are among the most complex with which public officials have to deal, and, being largely of a business nature, every mistake which they make helps to raise the citizen's taxes. If these problems are to be wisely solved, if each city is to benefit by the success of other cities and profit by their failures, city officials must have access to all the available information and data to be had upon these various subjects. They must compare notes.

Recognizing these facts, and that such information is both difficult to obtain and hard to keep up to date, a Municipal Reference Bureau is established for the service of the cities of the state. In so far as time and resources permit, it aims to collect and furnish information on all subjects of municipal organization and administration, public works, public utilities and public service rates, municipal employment, paving, sewage disposal, water supplies and water purification, garbage disposal, parks and play-grounds, housing, street cleaning, street sprinkling, dust prevention, smoke abatement, city planning, civic centers, art commissions, care of city trees, schools, charities and corrections, health and sanitation, accounting methods, comparative statistics, commission government, home rule, civic organizations, and all the other subjects of municipal interest, and, so far as possible, to collect and maintain a file of charters and ordinances of the principal cities of the United States, and the available municipal material of the principal cities of Europe and the continent. It has correspondents in most of the principal American cities, and in this way is able to furnish information as to what cities have, for instance, a milk ordinance, a wheel tax or other ordinance, how they work, and if desired lend a copy of the ordinance. It can tell how boards of public works are organized in various cities, how school boards are constituted, or how street sprinkling or street repairs are paid for. In short, it aims to be a clearing house for municipal experiments and experience.

BUREAU OF CIVIC AND SOCIAL CENTERS

For the legitimate, free, and healthy expression of the common, civic, social, and recreative life of a community, there must be a natural, common-to-all place of meeting. In our pioneer and rural communities, from the settlement of Plymouth to the

present day, there has always been the town hall or schoolhouse center for the community's use. The fruits of the town meeting in the development of American institutions are the pride of all true Americans.

For years there have been sporadic efforts to restore and extend this original practice in the country districts, and to promote the custom in city communities. The expression of this desire has come from so many sources that it has been deemed advisable to establish a bureau of civic and social centers with an expert adviser in charge, whose counsel upon these matters could be had by every community in the state.

During the first year of service through this bureau, many local communities have gathered in their schoolhouses or other public buildings, and formed organizations for free, non-partisan, non-sectarian discussion of public questions for the promotion of civic intelligence.

This association upon common ground, has promoted mutual understanding, the removal of prejudice, the growth of civic friendliness, and a large neighborhood ambition which expresses itself in making provision for opportunities for wholesome recreation and in movements for beautification, improved sanitation, and town promotion. Such increased civic spirit obviously facilitates the enrichment of the common cultural and educational life in many ways, as well as furnishes a more convenient means whereby the various communities may take advantage of the many resources offered by the Extension Division of the University.

HEALTH INSTRUCTION BUREAU

The Health Instruction Bureau has been established for the purpose of recasting into popular form the scientific knowledge of the academic departments of the University regarding the prevention and cure of disease, and disseminating it by means of correspondence-study courses, lectures, publications, exhibits, personal correspondence, surveys, consultations and conferences.

COMMUNITY MUSIC

The love and enjoyment of music is practically universal. In order to enable communities to enjoy and promote this common wholesome pleasure, and to stimulate and assist them in the dis-

covery and development of such individual talent as may lurk in a community, this special service is established.

In addition to correspondence-study teaching and the organization of community choruses, the endeavor is made to get the people of the state acquainted with their new opportunity, by means of addresses, bulletins, and other publications, and by advice and guidance.

EXHIBITS

In addition to these specific lines of activity for the general welfare, this department provides welfare exhibits and programs, and vocational, social, and community institutes on various aspects of the general welfare. Last year (1913) a Child Welfare exhibit was sent to six of the leading Wisconsin cities for a week at each place. There is now being prepared a health exhibit to be used in connection with the social and community welfare institutes to be held during the coming year in various parts of the state. These exhibits consist of statistical charts, pictures, models and descriptive literature, interpreted by an expert and accompanied by a program of talks, addresses, and conferences upon the subject of the exhibit. For some years several departments of the university have coöperated in accumulating a very effective and instructive Tuberculosis exhibit which was perfected by the Wisconsin Anti-Tuberculosis Association, preparatory to the International Tuberculosis Congress at Washington in September, 1908. At the present time an extensive exhibit on Health problems is being prepared. These exhibits will be sent by the Extension Division to communities in the state upon application without cost beyond the expense of transportation.

SOCIAL SERVICE INSTITUTES

Last year a social service institute covering six weeks was held in the city of Milwaukee. This institute provides intensive study for interested parties at a nominal registration fee upon the subjects of the Relief of Poverty and the Problems of the Adolescent Child. The Extension Division is prepared to put such an institute into the larger centers of Wisconsin through the agency of the Welfare Department. The subjects to be treated will depend in each case upon the problems of each locality.

COMMUNITY INSTITUTES

It has been found that the people of the small country towns are as desirous of obtaining the latest information on welfare topics as are the people of the larger cities. For their benefit the Community Institute has been organized by the Welfare Department of the Extension Division and is prepared to provide a community institute for the smaller communities of the State on the most pressing problem or problems of each community. This institute is carried on for three or four days in each place. In connection with it, as well as with the social service institute, an exhibit will be provided, and stereopticon lectures and moving pictures will be used to illustrate and impress the best knowledge which is available upon the particular problem under consideration.

VOCATIONAL INSTITUTES

An effective form of instruction in the scientific principles underlying and affecting trades, is presented in the vocational institute. Lectures and demonstrations dealing with the latest investigations of experts who stand at the head of their special lines of research are presented in such simple and practical form as to be readily available by the crafts. The proceedings of the Bakers' Institute, for example, have been printed each year, and are mailed to any address on request. The Extension Division will arrange for, and conduct institutes of one or more days' duration as desired.

BUREAU OF VISUAL INSTRUCTION

Although for several years the Extension Division has lent lantern slides, moving picture films, and other illustrative material to schools and other institutions and organizations, the service has not been organized into a bureau until now. This bureau will, by systematic study and the organization of its findings, accumulate information and collections which are at the disposal of local schools and organizations throughout the state. The Bureau will serve as a clearing house and source of information as well as a center and instrument for the distribution and circulation of its collections and illustrative materials.

DEPARTMENT OF PHYSICAL EDUCATION

GEO. W. EHLER, Director, Professor of Physical Education.

Professor Hetherington, Assistant Professors Trilling, Director Women's Gymnasium, Meanwell, Director Men's Gymnasium Elsom, Juneau; Miss Brown, Miss Brownell, Mr. Driver, Mr. Hindman, Miss H'Doubler, Dr. Hopkins, Mr. Jones, Mr. McChesney, Miss McKee, Mr. Richardson, Miss Sawtelle, Mr. Vail; Miss Ayer, Mr. Conlin, Mr. Dean, Mr. Schlatter, Mr. Stangl, Mr. Steinauer, Mr. Youngman.

JURISDICTION

The Department of Physical Education has jurisdiction over all athletic, aquatic, and gymnastic activities.

AIMS

The aims of the department are as follows:

1. The development of organic power, the basis of vitality, the prerequisite to physical and mental efficiency;
2. To secure and maintain good posture, a harmonious muscular development, and a reasonable degree of bodily skill and grace;
3. To provide an incentive and an opportunity for every student to secure at least one hour's physical recreation daily as a balance to the sedentary demands of university life;
4. To conserve the social and moral values of games and sports and to secure to every student the fullest opportunity for their practice;
5. To develop the "habit of exercise;"
6. To train physical educators and instructors, play leaders and recreation directors for service in educational institutions, clubs, playgrounds, municipal recreation systems, etc;
7. To establish high ideals and efficient administration of athletics throughout the state of Wisconsin.

EQUIPMENT

The Men's Gymnasium is 200 feet in length by 100 feet in width. On the ground floor are the offices, locker rooms, bath rooms, swimming pool, and a special gymnasium for corrective exercise. On the second floor are the offices of the military department and an unobstructed hall 165 by 98 feet used for the purposes of military drill and games. On the third floor are the visitors' gallery of the drill hall, the military club room, and the wrestling room.

The fourth floor contains the gymnasium, 165 x 65 feet. The equipment includes the usual apparatus and four handball courts. A new annex 225 x 84 feet contains a 12 lap dirt track, 12 feet wide, a baseball cage with dirt floor, and the rowing room.

The Women's Gymnasium occupies the second and third floors of Lathrop Hall, erected in 1910. The main gymnasium is two stories high with floor 118 x 60 feet, visitors' gallery, stage, and running track. The concert room, 72 x 42 feet, is used as a gymnasium for smaller classes. The equipment includes a complete outfit of developing appliances and the best modern types of light and heavy apparatus.

Two floors of one wing contain dressing rooms, showers, and lockers designed for the accommodation of 1,000 women. In the basement are four regulation bowling alleys; the swimming pool, 60 x 26 feet, well lighted and ventilated and supplied with filtered water; dressing rooms, showers, and nair drying apparatus.

A 40-acre athletic field is provided for the use of men students and all intercollegiate and other games and meets are held there. The field is equipped with two large grandstands, a running track, tennis courts, baseball diamonds, football fields, and other necessary features, including a hockey field for women. The University roads, arives, and paths afford ideal courses for cross country running. The University boat-house is located next to the gymnasium on the shore of Lake Mendota. The present equipment includes ten shells and a forty horse-power launch.

For outdoor sports in winter there is a toboggan slide, 1,400 feet long and 100 feet high, and a skating course and hockey rink.

REQUIREMENTS

Physical Training is prescribed for all first and second year students, including special students, throughout the college year, two periods per week for men and four for women.

Men students are required to be able to swim a distance of fifty (50) yards, women thirty five (35) yards, by the end of the sophomore year.

Students may not be excused from the prescribed training during the first two years without substituting an equivalent satisfactory to the department, or making up the work before graduation for which permission must be secured in advance.

Credits to the extent of four (4) for men and eight (8) for women must be secured in Physical Education by the satisfactory completion of the regular courses. These credits are determined on the basis of attendance and effort and the attainment of certain standards of organic development, motor proficiency, and knowledge of the principles and practice of efficient living.

The prescribed courses are designed to secure a high degree of organic power, harmonious physical development and a reasonable degree of skill and grace.

Election of specialized sports and exercises (course 2) may be made by students as soon as they have attained the minimum standard of vigor, development, and skill. This will usually occur at the end of the first year. Freshmen who have attained the required standard at the time of entrance may elect their exercise under course 2.

For the purposes of this department the college year is divided into three seasons, *Fall*—October and November, *Winter*—December, January, February, March, *Spring*— April, May, and June. During the Fall and Spring all activities are conducted out of doors in as far as the weather will permit. Regular indoor exercise is confined to the winter months.

Men students will provide themselves with suitable clothing for indoor and outdoor activities. The regulation suit consists of white sleeveless shirt, running pants, supporter, and rubber soled shoes. For outdoor sports students will require heavy shoes, stockings, short heavy pants, and negligee shirt or jersey.

For women a uniform suit is required and should be purchased in the Fall in Madison. Price $5.00. Suit should not be made at home without writing for directions.

The locker and laundry fee is $1.25 each semester and required of each freshman and sophomore. Upperclass women using the women's baths and swimming pool pay a laundry and suit fee of 50 cents each semester.

MEDICAL AND PHYSICAL EXAMINATIONS

The organic condition, stage of physical development and degree of motor efficiency attained by each entering freshman and sophomore is determined at the opening of the college year by the following series of examinations and tests:

(1) A complete medical examination given under the supervision and direction of the Department of Clinical Medicine. The findings of this examination together with the recommendations of the department are furnished the Department of Physical Education and appropriate modification in prescriptions of physical exercise are made in accordance therewith.

(2) A thorough physical examination made by members of the staff of the Department of Physical Education. This examination includes the essential measurements of the body (a limited number), certain strength tests and a careful search for abnormal deviations of form, structure, and function.

(3) A series of tests in typical activities to determine the individual's motor efficiency as shown by his agility, muscular control, physical judgment, endurance, and posture.

An endeavor is made to determine the student's exact organic condition with a view to outlining for each a proper regimen of exercise, diet, rest, and work. Students are classified on an organic scale and are permitted to engage only in such sports and games as their physical condition fits them for.

No student is permitted to participate in competitive games either of intercollegiate or intramural grade unless he is physically fit for the same as determined by the examinations described.

All members of intercollegiate teams are subject to the supervision of the medical members of the staff and every precaution is taken to prevent overtraining, exhaustion, or unnecessary strain.

All candidat s for football and other teams must be examined by and secure the permit of the Department of Clinical Medicine as well as that of the Department of Physical Education before reporting for practice with their squads.

All first year women will meet in Concert Room, Lathrop Hall, Thursday, September 24, 1914 at 3:30 to register and be assigned a date for examination. All second year women will register on the same day at 4:30.

All first year men and women are assigned to physical education periods in the same manner as to other class periods by the Freshmen Assignment Committees.

All second year men of the College of Agriculture and Engineering will be assigned to class periods by the committees of those colleges. All second year men of the College of Letters and Science will arrange their elections in this department at the department office *before Monday, September 28, 1914.*

All required activities of the Department of Physical Education begin Monday, September 28, 1914. All absences on and after that date must be made up.

TOURNAMENTS AND CONTESTS

The University is a member of the Intercollegiate Conference Athletic Association and maintains representative teams in all intercollegiate sports. No student may be a member of an intercollegiate team unless he is an *amateur athlete* and not until he has been a year in the University, has no conditions in his various courses, and has received a weighted average of 77 in the work of the semester previous to the time he desires to compete.

The Intercollegiate sports are under the government of the Athletic Council, a committee of five members of the faculty appointed by the President. The Director of the Department is the chairman of this committee.

All coaches and assistants are members of the University faculty and of the staff of the Department of Physical Education.

Inter-class and Inter-college tournaments and contests for men are conducted in all games and sports. Their conduct and management is in the hands of the Intramural Athletic Committee, composed of five students representing agriculture, commerce, engineering, law, and letters and science, and the Director and the Manager of Athletics, ex officio.

Similar tournaments and contests in games and sports suitable to women and confined to the women students of the University are conducted and managed by the Women's Athletic Association.

All tournaments and contests are subject to the supervision of the Department of Physical Education.

PROFESSIONAL TRAINING

In order to meet the demand for teachers of physical education, directors of playgrounds, and instructors in educational athletics and play of university caliber and training, the university has instituted a comprehensive group of professional courses in the theory and practice of physical education. These with related and prerequired courses in the departments of medicine and education and the foundation courses in the various other departments of the College of Letters and Science offer full opportunity for complete preparation for professional service in public elementary, high and normal schools, preparatory schools and colleges, clubs, social welfare institutions, play-grounds, municipal recreation systems, etc.

Major.—Students regularly entered in the College of Letters and Science electing their major in Physical Education are required to take courses 20 (4 years), 105, 106, 107 (4 credits), 108, 109, 112, 117, 121-150 (4 credits) and thesis— 4 credits, a total of 28 credits, and satisfy the prerequirements in Anatomy 120, Biology 1, Chemistry 1, and 120, Physiology 4, 5, and 6, Philosophy 1, 6 credits in Education 1, 6, 13, or 41, and Political Economy 2b or 139. Additional credit may be secured in courses 107, 113, 114, 115, 116, 118, and 121-150.

Minor.—Students electing Physical Education as a minor subject must take courses 20 (2 years) 105, 109, 110, 111, and 121-150 (2 credits), a minimum of 11 credits. Additional credits may be secured in courses 106, 113, 116, and 121-150. Prerequisites that must be satisfied include Philosophy 1, Education 11 and 13, Physiology 1a and 1b.

Students electing their minor in Physical Education under the 20 credit rule may not secure more than four credits in course 121-150 and must give two years to course 20.

Professional Certificate.—Students desiring to receive the certificate for teachers of physical education must comply with the following conditions:—

1. Fulfill all entrance requirements of the College of Letters and Science.

2. Be of sound health with a large measure of organic vigor, have shown an aptitude for the attainment of a high degree of motor efficiency, and give evidence of strong leadership at the time of making major election.

3. Fulfill all regular requirements for the B. A. degree.

4. Secure credits in prerequired and related sciences as follows:—biology—10, chemistry—14, physiology—13, anatomy—5, hygiene—5, psychology—3, sociology—3, education—6.

5. Secure a minimum of forty credits in Physical Education courses 105 to 150, including thesis—four credits.

6. Devote 10 hours per week for four years to the practice of athletics, aquatics, gymnastics.

7. Demonstrate in practice teaching as may be assigned, ability to handle squads, groups, classes and teams, and to organize and direct games, tournaments, contests, etc. Opportunities for practice teaching will be provided in connection with the undergraduate activities of the Department of Physical Education, including the prescribed courses, intramural and intercollegiate athletics, aquatics and gymnastics; also in the University Demonstration School and in the public schools and playgrounds of Madison.

Time of Course—Students are advised to plan to devote five years to this course, giving the entire freshman year to the general subjects of the B. A. course, securing the degree at the end of the fourth year and the certificate at the end of the fifth year, specializing in the fifth year in the advanced Physical Education courses and related subjects.

The Degree, *Master of Science*, may be secured under the requirements of the Graduate School, by students who give five years to the course in Physical Education and receive the B. A. degree at the end of the fourth year. (See Index under Masters Degrees.)

SPECIAL TRAINING

Students desiring to specialize as coaches or instructors in certain sports, games or events may do so by taking the required practice courses in course 20 and the required special technique in courses 121-150. No university credit will be given in these

courses except to students majoring or minoring in physical education.

VOLUNTARY EXERCISE

All students are urged to secure 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.

DEPARTMENTS OF INSTRUCTION

For Undergraduates

1. Developmental Exercises, comprising graded gymnastics, elementary athletics and aquatics. Prescribed for all freshmen and such sophomores as have not attained the requisite degree of organic power, muscular development, and motor efficiency. Men two hours, women four hours, weekly until requisite standard is attained; *one or two credits.*
2. Advanced Exercises. Systematic courses in athletics—track and field events, cross country running, baseball, basketball, football (intercollegiate, soccer), tennis, field hockey, etc.; aquatics—swimming, rowing, water polo, diving, life saving; gymnastics—advanced apparatus exercises, gymnastic, folk, and esthetic dancing, tumbling; wrestling, fencing, and boxing. The work of the various class and varsity teams is included in this course. Open to all students who have attained the required degree of organic power and bodily skill. Prescribed for sophomores who have completed course 1. Prerequisite, course 1 or its equivalent. *Two or more times weekly according to forms elected; one to four credits.*
3. Special Corrective Exercises—designed to give personal instruction and individual training to students whose condition prevents their participation in the regular courses. Required of all freshmen and sophomores unfitted to take courses 1 and 2. *Time and credit arranged; one or two credits.*
4. Efficient Living. The laws of personal and general hygiene, the principles of rational work, rest, recreation, and nu-

trition, the correlation of daily conduct and high grade efficiency. Given with courses 1, 2, and 3. Prescribed for all freshmen and sophomores.

20. General Technique. a. Men. b. Women. The practice course for students majoring or minoring in physical education. It is parallel to courses 1 and 2, and includes in addition to the activities of those courses instruction in nomenclature, elementary technique, methods of leading sections and squads, and practice leading in courses 1 and 2. The course covers 4 years for major students, 2 years for minor.

Personal proficiency must be secured in the performance of the following activities:—

1. Developmental Exercises—*Calisthenics*, graded *apparatus* exercises and elementary *athletics* (cross country running, starting, jumping, vaulting baseball, basketball, hockey, soccer, swimming, and miscellaneous games.) *Four hours per week throughout first two years.*
2. Specialized Exercises—*Gymnastics, track and field, basketball, etc.* See Courses 121–134, 141–150. *Four to six hours per week throughout first and second years; ten hours per week third and fourth years, including Practice Teaching.*

Note:—The work in courses 1, 2, 3, 4, and 20 is differentiated for the men and women according to their respective natures and needs.

Fall	Winter	Spring
1. Baseball	2. Basketball	1. Baseball
5. Cross country Running.	3. Boxing	4. Canoeing
8. Field Hockey	6. Dancing	8. Field Hockey
9. Football	7. Fencing	9. Football
13. Rowing	10. Gymnastics	13. Rowing
15. Soccer	11. Handball	15. Soccer
16. Swimming	12. Ice Hockey*	16. Swimming
17. Tennis	13. Rowing	17. Tennis
18. Track and Field	14. Skating*	18. Track and Field
	16. Swimming	
	18. Track and Field	
	19. Tumbling	
	20. Water Polo	
	21. Wrestling	

* Part season only and according to weather. May be elected only in connection with some other sport.

16. First Aid to the Injured. Cause, nature, and treatment of wounds, bruises, sprains, fractures, faints, shocks, etc., poisons, antidotes, stimulants; bandaging, dressings, antiseptics and disinfectants, etc. *One credit*, MR. ELSOM.

For Graduates and Undergraduates

105. History of Physical Education. This course covers the past history of physical education, comparative physical education, and the present status of physical education. It deals with the efforts for physical education among the different races during historic times, especially with those of the Greeks and Romans; with the modern movement, and the development of physical education in Sweden, Germany, and England; and with the present status of this field of education in the United States and in the different European countries. *Second semester; two credits.* MR. ELSOM.

106. Kinesiology. The Mechanics of Voluntary Motor Exercise. This course deals with applied anatomy and the mechanics of movement in relation to education. The movements of the body in general are studied. Special attention is given to gymnastic movements. Lectures, demonstrations, and discussions; prerequisites, course 20 and Anatomy 120. *First semester; three credits.* Mr. HETHERINGTON.

107. Physiology of Exercise. A study of the effects of exercise on the organism and functional processes, especially circulation and respiration, nutrition and elimination; the effects of exercises of varying strength, speed, skill, and endurance; a consideration of the problems of breathlessness, fatigue, soreness, and training. Prerequisite, course 106 and Physiology 6. *Second semester; lectures, laboratory work, and reports; four to eight credits.* Mr. DAWSON.

108. The Principles of Physical Education. Physical Education as a conscious social and educational endeavor, using neuro-muscular activities and their physical, mental and social results as a means. The results and values of exercise among other factors influencing the growth and

development of the child receive particular attention, also their relation to different individual tendencies and different social conditions. The principles and methods involved in the various systems are analyzed. Prerequisites, course 112, Physiology 1a and 1b or 6, and Philosophy 1. *First semester; three credits.* Mr. HETHERINGTON.

109. Nature and Function of Play. A study of play from the standpoint of its influence as a social and educational force. The meaning of play in the life of the growing child, place of play among the social-recreative customs of peoples, athletics as play, the social and educational possibilities of play, the factors controlling an effective development of the play impulse in the individual and in society, etc. Prerequisites, Philosophy 1, and course 112 or Education 11. *Second semester; three credits.* Mr. HETHERINGTON.

110. Physical Education of Children. From the viewpoint of the growth and development of the child and of the factors controlling the same and of the place of motor activities among those factors are considered the values and limitations of schoolroom gymnastics, the need of the larger activities of vigorous play, the problems of play and athletic organization, the use of recess periods, after school use of the playground and gymnasium and other practical problems of administration. Prerequisites, course 109. *First semester—first half; M., Tu., W., Th.; two credits.* Mr. EHLER.

111. Physical Education of Adolescents. Characteristics, tendencies, and needs of adolescents, physical education for adolescents with special emphasis on secondary school and college conditions together with consideration of the great non-student groups, classes of exercises to be used, conditions of individuals, methods of studying and dealing with such conditions, organization and management of competitive exercises, the social and moral leadership necessary. Prerequisites, courses 109 and 110. *First semester—second half; M., Tu., W., Th.; two credits.* Mr. EHLER.

112. Growth and Development. Characteristics of growth and development of organs and tissues, nascent periods, ac-

celeration, retardation and maturity of bones, muscles, nerves, heart, lungs and other organs, relation to organic and neuro-muscular education. Prerequisite, Anatomy 120, Philosophy 1. *Second semester; lectures, laboratory work; three credits.* Mr. HETHERINGTON.

113. Physical Examinations. Methods of measuring and testing the body, examination of the special senses, vitality and efficiency tests. Anthropometric methods, their place and values, statistical forms, graphic charts, etc. Determination of normal and abnormal variations. Prerequisite, Anatomy 120 and Physiology 1a and 1b or 6. *First semester; lectures, demonstrations, practical work; three credits.* Mr. ELSOM, Miss HOPKINS.

114. Medical Examinations. (Clinical Medicine 101.) Physical diagnosis of normal and pathological conditions, methods of examination of heart, lungs, kidneys, etc. Prerequisite, Anatomy 120, Physiology 6. *Second semester; lectures, demonstrations, laboratory work; three credits.* Mr. EVANS.

115. Prescription of Exercise. (Gymnastic Therapeutics.) The adaptation of methods of exercise to the development of the individual, correction of abnormal variations, use of special gymnastic appliances, etc. Prerequisites, courses 106, 107, 112, 113, and 114. *Second semester; lectures, demonstrations and practical work; three credits.* Mr. ELSOM, Miss HOPKINS.

116. Practical Conduct of the Playground. Spirit, aims, activities, discipline, equipment, supervision, tournaments, contests, exhibitions, etc. The practical problems of leadership, organization, and instruction. Prerequisite, course 109. Must be accompanied by course 122 or 142. *Second semester; one credit.* Mr. MEANWELL.

117. Principles of Adaptation and Teaching. Principles in the selection and adaptation of the various forms of motor activities according to the needs, capacities, and interests of individuals and groups, differentiated by sex and age periods; also principles and methods of leadership and instruction, including coaching, with observation and practice teaching in the regular activities of the department, the University Demonstration School, the public schools and playgrounds of Madison. Prerequisites,

courses 20, 106, 109, and 112. *Second semester; two credits.* Mr. HETHERINGTON.

118. Organization and Administration. The problems of the administrator and supervisor—administrative policies; physical education department in schools, colleges, Y. M. C. A. and Y. W. C. A., social welfare institutions; recreation systems—voluntary, municipal; finances, budgets; construction, equipment and care of plant—gymnasium, playground, athletic field, natatorium; selection, appointment and supervision of staff; organization and administration of activities—prescribed, voluntary, interscholastic, intercollegiate, inter-club, etc.; organization of classes, teams, etc.—enrollment, classification, handling; records, reports, surveys; local, sectional, and national organizations. Prerequisites, courses 20, 108, 109, 110, 111, and 117. *Second semester; three credits.* Mr. EHLER.

121–150. Special Technique. Special studies of the more complex activities used in physical education, from the standpoint of leadership, instruction, training, and special management. Each activity includes a one hour lecture weekly through one semester and in addition demonstration practice and practice teaching as may be assigned. Prerequisites—personal skill in the performance of each activity must have been acquired in course 20 or its equivalent. *Credit arranged: minor—two to four credits; major—four to eight credits; certificate—eight or more credits. Not open for general credit.*

Men—

121. Gymnastics (Tactics, Calisthenics, Apparatus, Tumbling).
122. Plays and Games.
123. Basketball.
124. Track and Field.
125. Swimming and Boating.
126. Dancing (Men and boys).
127. Baseball.
128. Rowing.
129. Football—American.
130. Soccer, Field Hockey and Ice Hockey.

131. Boxing.
132. Fencing.
133. Wrestling.
134. Tennis and Handball.

121, 122, 123, 124 required for major or certificate.
125, 126, 127, 128—two required for certificate.
129, 130—one required for certificate.
131, 132, 133—one or combination of two or three required for certificate.

Women—

141. Gymnastics (Tactics, Calisthenics, Apparatus).
142. Plays and Games.
143. Folk Dancing.
144. Basketball and Field Hockey.
145. Swimming and Boating.
146. Advanced Folk and Esthetic Dancing.
147. Baseball and Track and Field.
148. Rowing.
150. Fencing, Archery and Tennis.

141, 142, 143, 144—required for major or certificate.
145, 146, 147—required for certificate.
148, 150—one required for certificate.

MILITARY SCIENCE AND TACTICS

First Lieutenant, Philip G. Wrightson, U. S. Infantry, Commandant.
Battalion Sergeant Major, W. G. Atkins, U. S. Army, Retired, Assistant Commandant.

Military instruction at The University of Wisconsin is not elective, but is required by law. The congress of the United States and the legislature of the State of Wisconsin have made it a special and imperative feature of the course of education furnished at this institution. By the regulations of the University, all able bodied male students of the freshman and sophomore classes are required to take military drill unless excused by proper authority.

The work of the military department embraces practical instruction in infantry drill, rifle practice, and first aid to the injured, and two courses in drill regulations, lectures and recitations on military subjects for cadet officers and the higher non-commissioned officers. One unit hour credit is allowed for each semester of drill. Credit is given for attendance in class work as in other subjects.

All freshmen and sophomores are required to report to the Commandant in person within one week after the opening of the semester. Students may be excused from or defer drill on the following grounds only, all requests for exemptions and deferments being decided by the Commandant.

I. Exempt from drill and recitations

1. Foreigners not desiring to become citizens.
2. Physically unfit on medical certificate.
3. Short Course, College of Pharmacy.
4. Normal School Graduates and those who enter the University with college work sufficient to give them junior rank in some college of The University of Wisconsin.
5. Those holding United States Army, Navy, or Marine Corps discharges.

II. Excused from drill or recitations under policy of the Department on authority of the Commandant

1. Students from accredited schools or the National Guard with proper credentials, year for year.
2. Students certified by the Director of Athletics as absolutely necessary on Varsity teams or under such other conditions and for such periods of time as the Commandant and the Director may agree upon.
3. Special cases arising among the short term students after conference between the Commandant and the instructor, class adviser or dean.
4. Adult Specials over 23 years of age and not intending to graduate.

III. Deferring but required to make up in the Department

Under University requirements all freshmen and sophomores take two years of drill for graduation; if unable to take the drill they will take the two-hour study course.

1. All students deferring on the grounds of self support.
2. All students not falling under any of the cases enumerated above.

Drills will begin at the opening of the first semester, and be held three hours a week until April first, and two hours a week thereafter; freshmen and sophomores both.

All appointments to office in the companies shall originate in the sophomore class but officers may be promoted and continued in office during their junior and senior years.

All students must provide themselves with the cadet uniform described in the regulations for the military department.

The uniforms are furnished by the University and the fee (varying between $11.00 and $12.00) must be paid to the bursar by all students entering for the first time. If exempt from drill under group I a refundment will be made as soon as the exemption status is established. This can be done only at the office of the Military Department.

Students are warned against purchasing or procuring a uniform through any other than the official source unless such uniform has first been inspected and approved by the Commandant.

ORGANIZATION

The organization is that of a regiment of infantry, consisting of four battalions of four companies each, a band, drum corps, hospital corps, engineer company, and such auxiliary tactical units as the size of the corps necessitates. These organizations will be supplied with a full quota of cadet officers. Students will enter the infantry regiment and afterward be specially assigned to the other organizations at the discretion of the Commandant.

University fees amounting to ten dollars each semester will be refunded to all cadets who elect to take military drill as commissioned officers, after having completed the drill prescribed by law. An additional prize of fifty dollars will be paid the cadet colonel and lieutenant colonel, and twenty-five dollars to each major. These officers will act as assistant instructors in Military Science and Tactics.

Upon graduation especially qualified students receive from the Governor of Wisconsin commissions as brevet second lieutenants in the National Guard of Wisconsin, subject to assignment to duty for five years after graduation.

STUDY COURSES OFFERED BY THE DEPARTMENT

COURSE NO. 1.

Two hours, Tuesdays and Thursdays.

Required of students falling under Group III above.

1. Drill Regulations—Chiefly a rapid fire quiz with blackboard sketches or other methods of illustrating various phases of drill. This will include guard duty and other ceremonies.
2. Firing Regulations—Partly quiz but largely illustrative of the underlying principles of rifle fire and the methods of instruction for field firing of large bodies of untrained men.
3. Military Hygiene—First aid lectures and the practical demonstrations of such forms of first aid, camp sanitation, personal cleanliness, care of the feet, etc. as are of supreme importance in the field or camp.

COURSE No. 2.

Three hours, Mondays, Wednesdays, and Fridays.

Limited to officers and those trying for a commission.

1. Military Law—Lectures, quiz, and the practical operations of military courts. Actual cases to be brought to trial by students. Comparisons to be made between civil and military courts, their composition, jurisdiction, and procedure.
2. Field Engineering—Consisting of quiz, lecture, and demonstration. The rough and ready methods used in practical field work where exact scientific instruments are lacking and the axe, rope, rule, and string are the means to secure results. The demonstrations will be in the use and construction of model material for bridges, ferries, field intrenchments, etc. If weather permits, much of this work will be out of doors.
3. Field Service Regulations—Quiz largely with lectures, avoiding chapters on organization of army but dwelling on marches, scouting, camping, outposts, attack, and defense, etc.
4. Topography—This will consist almost entirely of Map reading and Map making from the military viewpoint. Contouring, orienting oneself on the map, route sketching for scouts and officers, etc. will be emphasized. This with the two preceding subjects leads to course 5.
5. War Games or Map Maneuvers—In this the simple problems of outposts, attack and defense, protection of bridges, convoys of wagon trains, etc. will be worked out. Weather permitting, two or three tactical walks will close the class work.

The Commandant is assisted by Lieutenant Colonel and Surgeon, J. C. Elsom, Medical Corps, who has direct charge of the Hospital Company and by the colonel, lieutenant colonel, and the four majors who are responsible for the instruction of their subordinate officers in drill regulations.

The Band, consisting of 50 pieces is under the direction of Major C. A. Mann.

Credits in the department are limited to 10 out of the 120 required for graduation.

THE GRADUATE SCHOOL

GEORGE C. COMSTOCK, Director.

GENERAL STATEMENT

The University of Wisconsin is a part of the system of public instruction provided by the State, but is open to all properly qualified students without regard to state lines. The students of the Graduate School are largely from other educational institutions located in many states, although many of them come from the University's own undergraduate departments. It is the aim of the University to offer the opportunities for advanced instruction and research to as wide a constituency as possible. No limitations are placed upon a student's freedom in research and in the expression of his conclusions upon subjects which he is prepared to treat, but the University avoids all that is partisan in politics and sectarian in religion, without debarring its members from investigation and activity in any field.

ORGANIZATION

Prior to 1895 the graduate work of the University was conducted by its several departments of instruction without further coöperation than is implied in their relations to the University as a whole. The development of this work, however, led to its organization, in 1895, as a Department, of Graduate Study, and in 1904 it was advanced to the status of a Graduate School, the administration of which was entrusted to a committee of the University faculty called the Administrative Committee of the Graduate School. In 1906 the office of Director of the Graduate School was created and in 1910 a graduate faculty was organized for consideration of the larger questions affecting the school. The Director is charged with general supervision of all graduate students and is the medium of communication between such students and the University administration.

AIMS AND METHODS

The Graduate School aims to serve the needs of young men and women of college training who desire a larger and more thorough acquaintance with the scholarship and research of the world than can be obtained in the current undergraduate courses. It seeks to awaken in the minds of capable men and women an appreciation of high scholarship, research, and the advancement of learning, to the end that they may effectively aid, not only in the promulgation of academic instruction, but also in extending the boundaries of knowledge. Although the work of the Graduate School is in large part planned with reference to the needs of those who desire to fit themselves for the higher positions in the work of education, and who as preparation for this work seek to specialize along definite lines, the opportunities of the School are open to others as well.

The University aims to give advanced instruction of a high character in each department of its Graduate School, but the scope, form, and methods of this instruction are determined independently within the several departments. Lectures, laboratories, and the seminary method are largely employed, and special emphasis is everywhere laid upon bringing the graduate student into contact with the research problems of his department of study. To this end able students share in the investigative work of their instructors and are encouraged to acquire the spirit as well as the methods of productive work. Provision has been made by the University for the publication under its auspices of the results of specially meritorious work of this kind, and doctors' theses of more than common merit are occasionally thus published.

CLUBS AND SOCIETIES

To promote interest in problems of scholarship and investigation, and for training in the presentation of results, numerous voluntary clubs and societies have been established by instructors and students in the Graduate School. Among these are:

THE SCIENCE CLUB,
THE CLASSICAL CLUB,
THE LANGUAGE AND LITERATURE CLUB,
THE HISTORICAL CONFERENCE,

THE ROMANCE LANGUAGE CLUB,
THE GERMAN JOURNAL CLUB,
THE CHEMICAL CLUB,
THE BIOLOGICAL CLUB,
THE MATHEMATICAL CLUB,
THE WISCONSIN SECTION OF THE AMERICAN CHEMICAL SOCIETY,
THE UNIVERSITY OF WISCONSIN BRANCH OF THE AMERICAN INSTITUTE OF ELECTRICAL ENGINEERS.
THE UNIVERSITY OF WISCONSIN SECTION OF THE AMERICAN ELECTROCHEMICAL SOCIETY.

THE GRADUATE CLUB, while sharing in these purposes, is primarily a social organization of all graduate students for the promotion of acquaintance and good fellowship among themselves and members of the faculty.

FELLOWSHIPS AND SCHOLARSHIPS

University Fellowships

For the purpose of promoting higher scholarship and research the Regents of the University have established twenty-two University Fellowships of the annual value of $400 each. These are allotted to the several departments of instruction as follows:

To Political Economy, two; to History, two; to Geology, and the Biological Sciences, two; to Engineering, two; to Agriculture, two; to the following departments and groups of departments one each, viz.: Botany, Political Science, Sociology, Latin, Greek, German, Romance Languages, Chemistry, Physics, Mathematics and Astronomy, Philosophy, Education.

To the above should be added certain endowed fellowships specially described upon following pages.

The following are regulations respecting the University fellowships:

1. Any fellowship to which the present regulations apply may be held by any graduate of a college of recognized standing or by anyone whose education is equivalent to that represented by a college degree. Those about to take such a degree are eligible candidates, the regulations applying to the time of entrance upon the duties of the fellowship. Men and women are equally eligible. Preference in appointment will usually be shown to candidates who possess a competent reading knowledge of French and German.

2. Fellowships will be granted upon application only, which should be made upon a special blank form furnished by the Registrar of the University; such application, with accompanying evidence of merit, attain-

ment, and ability, to be in the hands of the Registrar before March 1st of the collegiate year preceding that during which the fellowship is to be held.

3. All fellowships will be filled each year. Fellows may be re-appointed for one additional year only.

4. Application must be accompanied by evidence of scholarship, ability, and general worthiness; such as theses (whether prepared for this or other purposes), published writings, testimonials from instructors, outline of educational course pursued, special distinctions gained and the like. Applications for reappointment should contain a full account of the work of the preceding year. Applications to receive attention, must contain a definite statement of the special studies which the applicant intends to pursue.

5. Each fellow shall pursue his studies under the direction of the professor or professors in charge of his special studies. Assignment of University services to the fellow shall be made by the President in consultation with the head of the department to which the fellow has been assigned, and the work assigned may be equivalent to one hour of teaching daily. It is stipulated that the holder of the Sociology fellowship shall do work at the University Settlement in Milwaukee.

6. Vacancies in fellowships, due to resignation or other cause, may be filled as they occur, at the option of the faculty.

Honorary Fellowships

The Regents have established honorary fellowships, equal in number to the University fellowships, and filled in a similar way. These are restricted, however, to persons who have already held academic honors, such as fellowships or teaching or research appointments. No compensation is attached to these positions except the remission of University fees, and no teaching service is required; but to be eligible to an honorary fellowship one must be a graduate of at least one year's standing.

Teaching Fellowships

For the promotion of educational efficiency, the Regents of the University have established in addition to the University Fellowships above described eight Teaching Fellowships, which are to be filled annually upon nomination made by the Committee on the Training of Teachers. These fellowships are open only to graduates of The University of Wisconsin who have had no experience in teaching. The holders of these fellowships devote one-half year to special graduate study within the University and one-half year to apprenticeship teaching, under supervision, in a "co-operating high school." For the latter service a payment of $135 is made in addition to the stipend of $275 attached to the fellowship. For further details concerning these teaching fellowships application may be made to the Director of the Course for the Training of Teachers.

Working Fellowships

An arrangement has been made whereby a limited number of graduate students may be appointed to positions under the state government of Wisconsin known as Working Fellowships in Transportation, Taxation, Insurance and Labor and bearing a salary of $600 for eleven months' service. Appointment to these positions is made upon recommendation of the Civil Service Commission and the department expects the incumbent to devote one-half of his time to graduate study within the University and one-half to the service of the state, *viz.*, the Tax Commission, The Railroad Commission, Industrial Commission, and the Department of Insurance. It is expected that the service rendered to these departments will be, in part at least, of the nature of investigation furnishing a valuable supplement to academic work in the University department of political economy. For further information application may be made to the Civil Service Commission or to the University Registrar.

The Albert Markham Memorial Graduate Traveling Fellowship

In accordance with the terms of a bequest from the estate of the late Albert Markham, founder and principal of Markham Academy, Milwaukee, the Albert Markham Memorial Graduate Traveling Fellowship is offered annually in the departments of language and literature of The University of Wisconsin, and is to be administered by a committee representing those departments. The income for 1913–14 is $800.

This fellowship is to be reserved exclusively for men and women of exceptionally high intellectual attainments and of great promise as productive scholars. The appointee shall be a Ph. D. graduate of The University of Wisconsin who has received the degree in the year of appointment, or within the two preceding years. Holders of the degree of Ph. D. from other institutions are eligible if they have done two years of graduate work at The University of Wisconsin. The major work of the appointee must lie in one of the departments of language and literature. He is expected to devote the year to foreign travel and study in foreign universities, but by special permission he may study at some other American university.

The Mary M. Adams Graduate Fellowship in English

By will the late Charles Kendall Adams, formerly President of The University of Wisconsin, conveyed the larger part of his estate to the Regents of the University for the gradual establishment of fellowships in Modern History, Greek, and in the English Language and Literature. The first of these fellowships, the Mary M. Adams Graduate Fellowship in the English Language and Literature became available in the academic year 1906–07, since which time the annual amount paid to the incumbent has ranged from $500 to $550.

The Charles Kendall Adams Graduate Fellowship in Greek

The second of the graduate fellowships established by the will of the late President Adams became available in the academic year 1913–14. It is called the Charles Kendall Adams Graduate Fellowship in Greek, and its value to the incumbent will be something over $500.

Graduate Scholarships

The Regents of the University maintain twenty-one graduate scholarships of the value of $225 each. Two of these are designated for Economics, one for Political Science, one for European history, one for American history, two for Agriculture, and three for Engineering. Appointments to these scholarships are in general made in the same manner as appointments to fellowships, but by special provision authority is conferred upon the faculties of Beloit College, of Carroll College, of Lawrence College, of Milton College, of Milwaukee Downer College, and of Ripon College to nominate annually to the faculty of The University of Wisconsin one member of their respective senior classes as a suitable candidate for a University scholarship. Such candidates when duly appointed by the Regents of the University, shall be in all respects upon the same footing as other University scholars.

Through the generosity of friends of the University, there has been established the Henry Gund Graduate Scholarship in the Department of German, of the annual value of approximately $250.

All fellows and University scholars are required to pay the regular incidental fee, but are exempt from the non-resident tuition fee.

ADMISSION TO THE GRADUATE SCHOOL

Graduates from four-year courses of liberal study in any approved university or college will be admitted to the Graduate School without examination, but will not be considered as candidates for a higher degree until announcement of such candidacy has been made to the Director of the Graduate School. Undergraduates of The University of Wisconsin who have completed all requirements for the baccalaureate degree may be admitted to the Graduate School before the degree is actually conferred. Each applicant for admission to the Graduate School should, in person, present his college diploma to the University Registrar, who will determine, provisionally, his eligibility to admission, and will furnish a statement of fees to be paid at the Bursar's office. This statement serves also as a certificate of enrollment in the Graduate School, and should be presented promptly to the Director, at Room 162 University Hall, who will issue to the student an election card for presentation to the several instructors under whom he desires to study. Students already enrolled in the Graduate School should obtain from the Director an election card at or before the beginning of each semester. (For a statement of fees to be paid in the Graduate School see page 125.)

ASSIGNMENT OF STUDIES

The election card should be presented first to the instructor under whom the student's principal work is to be done, designated his major professor, who will advise with regard both to the courses of major study and the subordinate studies that may be combined advantageously with the major. The studies thus determined will be entered upon the election card, which must be signed by the instructor in charge of the major and endorsed with the approval of each other instructor with whom work is to be taken. The completed card should be submitted, in person, to the Director of the Graduate School as soon as possible after the opening of the semester. The student's registration is not complete until the election card has been thus submitted to and approved by the several officers above named and returned to the Director.

Graduate students are invited to confer freely with the Director of the Graduate School in all matters concerning their relations to the University.

SECOND DEGREES

The University of Wisconsin confers the following second degrees: *Master of Arts, Master of Science, Master of Philosophy, Civil Engineer, Mechanical Engineer, Electrical Engineer, Chemical Engineer, Engineer of Mines.*

These degrees are conferred in accordance with the conditions set forth below, upon graduates of The University of Wisconsin and upon graduates of other institutions of learning whose training has been substantially equivalent to that represented by the baccalaureate degree of The University of Wisconsin. The University will determine this substantial equivalence of training by such methods as seem best adapted to each case, and may impose upon any candidate such additional requirements as seem needful and just; its judgment in this respect being influenced by the actual attainments of the candidate in larger measure than by the institution at which he has previously studied, and its purpose being to adjust differences in the training furnished by different institutions.

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* and the second degrees in engineering, are respectively conferred upon candidates whose undergraduate work corresponds to that now leading to the degree, *Bachelor of Science*, as conferred by The University of Wisconsin. The degree, *Master of Philosophy*, is conferred only upon those candidates who have received from The University of Wisconsin the degree of *Bachelor of Philosophy*, but such candidates may receive the M. A. degree in lieu of Ph. M. by absolving, as a supplement to their graduate work, all requirements for the B. A. degree not satisfied at the time of taking their Ph. B.

Candidacy for the above degrees is normally based upon resident study at the University, but in a considerable class of cases provision is made whereby a measure of credit is extended to work done *in absentia*. In no case, however, will a master's degree be conferred in course without the equivalent of one semester of resident graduate study at The University of Wisconsin.

The following regulations for the attainment of second degrees apply to all candidates in residence.

1. During a period of at least one academic year the candidate must pursue a course of graduate study characterized by definiteness of purpose and approved by the University as appropriate to that purpose and suitable in amount. Such a course includes normally for each semester assigned graduate work carrying from nine to twelve credits and at least one-half of this work must lie in a single department. The undergraduate preparation of the candidate must be sufficient to satisfy the instructor that the advanced work may be profitably undertaken. Undergraduate courses of suitable character may be elected in addition to the normal amount of graduate work, provided that the recommendation of the professor in charge of the student's major and the approval of the Director of the Graduate School be obtained in advance.

2. Students who during their candidacy for the 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 Graduate Committee.

3. For students seeking to specialize in a definite line of study the preparation of a thesis may be required and subject to the approval of the professor in charge, such thesis work may be elected by others. If elected, a typewritten copy of the completed thesis bearing the approval of the professor under whom it is taken must be filed with the Librarian of the University on or before June 1 of the year in which the degree is to be conferred.

4. The candidate must sustain an oral examination upon the graduate work offered in support of his candidacy. Subject to the approval of the President of the University, the time and place of this examination will be determined and the examining committee appointed by the Director of the Graduate School.

Second Degrees in Engineering

The degrees, *Civil Engineer*, *Mechanical Engineer*, *Electrical Engineer*, *Chemical Engineer*, and *Engineer of Mines* will be conferred:

(a) Upon graduates of approved institutions who have completed suitable undergraduate courses and who successfully pursue not less than one year of advanced engineering study at The

University of Wisconsin, in accordance with the rules above set forth for the attainment of second degrees.

(b) Upon graduates of the College of Engineering of The University of Wisconsin who have spent three years in professional work, at least one of which must have been in a position of responsibility, and who present a satisfactory thesis.

Second Degrees for Students in Professional Colleges

Graduates of approved institutions who are regularly enrolled in the professional colleges of this University may supplement their professional studies by work taken in the Graduate School. Upon the completion of an approved course of study they will be admitted to examination for the master's degree, to be conferred at the time of their graduation from the professional college. The course of study thus prescribed for the attainment of the master's degree may be expected, normally, to require one-third of the student's time for a period of two years.

CANDIDATES FOR THE MASTER'S DEGREE PARTLY IN ABSENTIA

By consent of the departments concerned any person, eligible to candidacy for a second degree, who has done satisfactory graduate work during one Summer Session of the University, may be admitted to candidacy for a master's degree upon the following terms:

1. The candidate must conform to all of the above regulations for candidates for the master's degree with exception of the requirement of residence at the University.

2. During a period of two consecutive years, while not in residence at the University, the candidate must pursue a course of advanced study previously arranged and approved by some department of the University and attested by a signed statement filed with the Director of the Graduate School. See Rule 3 below. This work is designated his major study, and during two or more Summer Sessions, in addition to the one above named, he must pursue, at the University, work in continuation of, or collateral to, this major; for example, laboratory or seminary work in the department in which the major is taken. The *absentia* work is expected to equal in amount that normally accomplished in three summer sessions. But, experience having shown that in

many cases this amount of work can not be done within two years by teachers and other persons charged with onerous duties, the University reserves the right to impose in such cases four summer sessions as the minimum period of residence, with corresponding diminution of the *absentia* work.

3. As some departments of the University do not concede the privilege of candidacy *in absentia*, the applicant for this privilege must arrange in advance with the department concerned for its approval of the proposed work and must show that he has access to adequate facilities for its prosecution. A form showing that such arrangement has been made must be completed and filed with the Director of the Graduate School at or before the close of the first summer session of candidacy. By consent of the department and of the Director of the Graduate School, graduates of The University of Wisconsin may enter upon the *absentia* work above prescribed, without prior residence in the Graduate School. For all other candidates residence at The University of Wisconsin for one summer session, or its equivalent, will be required as a prerequisite to approval of candidacy by this method. Continuous supervision by the University cannot, in general, be given to work done *in absentia*, and its amount and character will therefore be tested at the opening of each summer session by examination upon the ground covered *in absentia* during the preceding year.

THE DOCTOR'S DEGREE

The degree of Doctor of Philosophy is not conferred solely as the result of faithful study extending over any prescribed period; special attainments are required in all candidacy for this degree, particularly the power of independent investigation as shown by the production of a thesis embodying original research or creative scholarship, presented with a fair degree of literary skill. Candidacy for the degree is based upon resident graduate study normally extending over a period of not less than three academic years, at least one of which must be spent at this university. Candidates who are engaged in teaching or other remunerative employment will be required to devote to their candidacy such additional period in excess of three years as may be designated by the Graduate Committee.

The attention of graduate students is called to the following regulations respecting candidacy for the doctor's degree and they will be presumed cognizant of them.

1. Major Study. Candidates for this degree are required to select a major study which may be coextensive with one of the "subjects" under which the departmental announcements of courses are classified, or which may be constructed from two closely related subjects. Only in exceptional cases and with the prior approval of the Director of the Graduate School will a major be allowed to extend to more than two subjects. The courses composing the major may be divided among several instructors, one of whom, designated as In Charge of the Major Study, will act as the student's adviser in the selection and arrangement of courses constituting the major and also the minor studies defined below, and will have immediate supervision of the thesis.

2. Minor Studies. Supplementary to his major work, the candidate must pursue one and may pursue two minor studies. If but one minor is offered, it should represent from one-fourth to one-third of the entire work given to candidacy for the degree. An amount of work not exceeding one-half of the whole may be divided between two minors, but no minor study will be recognized which represents less than one-third of the full work of an academic year. At least one minor must be taken outside the department in which the major lies and no minor may be taken in chief part under the professor in charge of the major. A minor study must lie wholly within a subject as above defined and shall include no part of any subject that enters into the major study.

3. Not later than November 1 of the academic year in which the doctor's degree is to be taken, each candidate for the degree must submit to the Director of the Graduate School certificates from the departments of French and German of The University of Wisconsin, showing that he possesses a sufficient reading knowledge of these languages to use them for purposes of research in his major study. All graduate students are urged to absolve this requirement at the earliest possible date, e. g., at the beginning of their graduate work.

4. Not later than November 1 of the academic year in which the degree is sought, the candidate shall file with the Director of the Graduate School his formal application for admission to candidacy, accompanied by the title of his proposed thesis, subject to

future verbal amendment, and by departmental recommendation of his candidacy obtained through one of the following methods:

(a) Through a written examination conducted by the departments in which his major and first minor subjects lie and designed to test the extent of his knowledge in those fields. The questions constituting this examination and the answers, graded with respect to excellence, must be filed with the Director of the Graduate School at or before the time at which application for admission to candidacy is made.

(b) Through an oral examination of purpose and scope comparable with (a) but conducted by the departments concerned (major and first minor) in the presence of one or more representatives of the University designated for that purpose by the Director of the Graduate School.

(c) Through the application of such other substantial tests as the departments may elect. In this case a report must be filed with the Director setting forth the nature of the tests employed, and the report must bear the signatures of the professor in charge of the candidate's major and first minor subjects.

The several examinations and tests above prescribed will normally be held at the close of the second year of graduate study, but, with the prior approval of the Director of the Graduate School, they may be placed at any date within four months of the normal time.

When approval of a candidacy is made through either of the methods above designated (a) or (b), it may be accompanied by a memorandum limiting the scope of the final oral examination to a specified part of the major and first minor subjects, and may further provide for a written examination to be held immediately prior to the oral examination as a supplement to it.

Upon request the Director of the Graduate School will transmit to the committee upon the oral examination provided in Rule 5, the reports and other papers filed as above prescribed, for such consideration and use as the committee may desire to give them.

5. Every candidate for the doctor's degree will be orally examined upon the general field of his major and minor studies but examination upon a second minor subject may be waived upon the recommendation of the instructor in charge, accompanied by a certificate that the candidate has passed a special written examination adequately covering the field of such subject. Subject

to the approval of the President of the University the Director of the Graduate School will appoint for each candidate an examining committee, usually composed of five members, and will designate a time and place for the examination.

6. Ten days prior to the oral examination the candidate shall deposit his thesis, approved for form by the Director of the Graduate School, with the student's major professor for the use of the examining committee. He shall likewise deposit with the Director of the Graduate School an abstract of his thesis certified by the major professor to be suitable for publication. The certificate of the University Librarian that he has received the printed copies of the thesis prescribed in Rule 7 will be accepted in satisfaction of this requirement. In exceptional cases, by consent of the Graduate Committee and upon the recommendation of the professor in charge of the major, the candidate for the doctor's degree may be permitted to take the general oral examination prior to the approval of the thesis, but the degree will not be conferred until the candidate has passed an additional oral examination upon the special field of his thesis, to be held when the thesis is approved.

7. The successful candidate is required to put his thesis into print and to deposit *one hundred* copies of the same in the University Library. If the thesis is printed in a journal, or as a bulletin, reprints will be accepted for the library, but these must be provided with a special cover and title page in proper thesis form. In the case of a doctor's thesis published in (1), such scholarly periodicals, or society or University publications as shall be approved by the Director of the Graduate School; or (2), in bound volumes issued and sold by well known publishing houses, approved by the Director of the Graduate School, the candidate shall be required to deposit six copies of reprints, or volumes with the University Librarian in form approved by him, in lieu of the hundred copies otherwise required. The diploma may be conferred before the thesis is printed, provided a written or typewritten copy bearing the approval of the major professor is deposited with the University Librarian, and the sum of fifty dollars is deposited with the Bursar of the Regents as a guaranty of subsequent publication. This deposit will be refunded on presentation of the printed copies to the University Li-

brarian within the ensuing two years but is liable to forfeiture after this period.

DEGREE OF DOCTOR OF PUBLIC HEALTH

The degree of Doctor of Public Health (Dr. P. H.) is open to holders of the degree of Doctor of Medicine from medical schools recognized as maintaining satisfactory standards. Candidates for the degree of Dr. P. H. must spend at least two years subsequent to the regular Medical Course in the study of sciences related to hygiene and public health. The last of these years must be spent at The University of Wisconsin and must be devoted chiefly to work upon a special subject leading to a thesis containing some original research acceptable to the Executive Committee of the Medical School. The general requirements for the degree are essentially similar to those specified for the degree of Doctor of Philosophy with the following exceptions:

1. The language requirements are those maintained for the B. S. degree (Medical Science Course).
2. The time requirements are as outlined above.
3. The preliminary examination of the candidate is to be conducted by and his thesis approved by the Executive Committee of the Medical School as well as by the department in which the major work is taken.

FEES AND EXPENSES

Graduate students, including those working under supervision *in absentia*, pay the same fees as undergraduates in the College of Letters and Science. See Index, under Fees and Expenses.

GRADUATE CIRCULAR

The special announcement of the Graduate School for 1913–14, giving detailed information concerning the school, may be obtained upon application to the Registrar of the University.

THE SUMMER SESSION

SCOTT H. GOODNIGHT, Director

DURATION OF THE SESSION

The sixteenth Summer Session of The University of Wisconsin opens June 22, 1914. The session lasts six weeks and closes July 31, except in the Law School and four courses in Agriculture, where the session continues ten weeks and ends August 28.

CLASSES OF COURSES

Courses, both academic and professional, are offered for graduates, and for undergraduates in arts, law, engineering, and agriculture, for teachers in colleges, agricultural schools, high schools, and technical schools; and for special students, as lawyers, doctors, and practicing engineers. Practically 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.

TERMS OF ADMISSION

The requirement for graduates and undergraduates who desire University credit are the same for the summer session as for the other sessions of the University.

All persons, however, who desire to share in its advantages may be enrolled in the summer session without passing the entrance examination. They are freely admitted to all courses as auditors, and are permitted to elect work in the courses for which they are qualified. Credit toward a degree will be given, however, only to students who satisfy the entrance requirements of the University.

CREDITS FOR SUMMER SESSION WORK

A student in any of the colleges may receive for the session of six weeks a maximum of six credits. In the Law School (ten weeks) the maximum is eight credits. In Agriculture, six credits may be earned in the six-week course, ten in the ten-week course. Credit toward all degrees may be earned in the summer session. Candidates, who expect to offer for graduation the minimum of thirty credits, must spend two semesters in residence; those who expect to offer forty-five or more credits earned in residence, may earn all or any part of them in summer session.

A special method of obtaining the master's degree by part summer session and part *in absentia* work is described on page 555 of this catalogue.

FEES AND REGISTRATION

The general fee for the Summer Session, irrespective of the number of courses taken, is $15 for six weeks, and $25 for ten weeks. Those who attend merely as visitors pay the same fee as other students.

Registration must precede entrance upon any part of the work of the session. Registration takes place Saturday, June 20, and Monday, June 22, at the office of the Registrar, 158 University Hall.

PUBLIC EXERCISES

A large number of lectures and conferences upon topics of general interest are given at convenient hours. A programme of these public exercises is published weekly during the session.

SUMMER SESSION BULLETIN

For illustrated bulletin of the Summer Session, describing the different courses in considerable detail, apply to the Registrar.

GRADUATE SCHOOL, COLLEGE OF LETTERS AND SCIENCE, MEDICAL SCHOOL

ANATOMY

PROFESSOR BARDEEN; ASSOCIATE PROFESSOR MILLER.

110. Histology and Organology. *M., Tu., W., Th., F.*, 9 *to* 12; *three credits.* Mr. MILLER.

115. Embryology. *M., Tu., W., Th., F.*, 9 *to* 12; *two credits.* Dr. BARDEEN.

121. Human Anatomy. *M., Tu., W., Th., F.*, 9 *to* 5:30; *credit according to work done.* Dr. BARDEEN.

122. Topographical Anatomy. *M., Tu., W., Th., F.*, 9 *to* 5:30; *credit according to work done.* Dr. BARDEEN.

126. Neurology. *M., Tu., W., Th., F.*, 2 *to* 5; *three credits.* Dr. MILLER.

130. Modern Laboratory Methods and Research. Dr. BARDEEN, Dr. MILLER.

BOTANY

ASSISTANT PROFESSORS DENNISTON, GILBERT; MR. BARTHOLOMEW, MR. PULLING, MR. STEIL, DR. STEWART; MR. BENNETT.

1. General Botany. *M., Tu., W., Th., F.*, 8 *to* 10, *and three additional hours; lectures, M., W., F.*, 9; *three credits.* Mr. DENNISTON, Mr. STEWART.

103. Morphology of Algae. *M., Tu., W., Th.*, 2:30 *to* 4:30, *and Saturday excursions; two credits.* Mr. STEIL.

104. Morphology of the Fungi. *M., Tu., Th., F.*, 8 *to* 10; *two credits.* Mr. GILBERT.

105. Mosses and Ferns. *M., Tu., W., Th.*, 8 *to* 10; *two credits.* Mr. STEIL.

106. Morphology of Seed Plants. *Tu., W., Th., F.*, 10 *to* 12; *two credits.* Mr. BARTHOLOMEW.

130. Classification of Seed Plants. *M., Tu., Th., F.*, 2:30 *to* 4:30, *and Saturday excursions; two credits.* Mr. STEWART.

131. Dendrology. *Tu., Th.*, 3:30 *to* 5:30; *one credit.* Mr. DENNISTON.

146. Plant Physiology. *M., Tu., W., Th., F., S.*, 9 *to* 12; *four credits.* Mr. PULLING, Mr. BENNETT.

150S. Microscopical Technique. *M., Tu., W., Th.*, 8 *to* 10; *two credits.* Mr. BARTHOLOMEW.

160. The Teaching of Botany. *M., W., F.*, 11; *one credit.* Mr. GILBERT.

16 and 216. Research. *Hours to be arranged; credit according to work done.*

CHEMISTRY

PROFESSORS FISCHER, KAHLENBERG; DR. CARLETON, MR. NEBEL; MR. BURCHARD, MR. JONES, MR. SCHUETTE, MR. WOLLIN.

1. General Chemistry. *Laboratory work, at least two consecutive hours per day; lectures, M., Tu., W., Th., F.*, 10; *two credits for the lectures; in the laboratory, credit according to amount of work done.* Mr. KAHLENBERG, Mr. BURCHARD, Mr. JONES, Mr. WOLLIN.

1S. Qualitative Analysis. *Lectures, Tu., Th.*, 8; *laboratory hours to be arranged; two or more credits.* MR. BURCHARD, MR. JONES.

11. Quantitative Analysis. *Lectures, M., Tu., W., Th., F.*, 8; *three or more credits.* MR. CARLETON.

112. Advanced Quantitative Analysis. *Two or more credits.* MR. CARLETON.

113–4. Water and Gas Analysis. *Hours to be arranged; two credits.* MR. FISCHER, MR. SCHUETTE.

119. Organic Analysis. *Hours to be arranged; two or more credits.* MR. FISCHER, MR. SCHUETTE.

120S. Organic Chemistry. *M., Tu., W., Th., F.*, 9; *laboratory work, at least two consecutive hours per day; two credits for the lectures and one or more credits for the laboratory work.* MR. FISCHER, MR. NEBEL.

130S. Physical Chemistry. *Tu., Th.*, 11; *one credit.* MR. KAHLENBERG.

200S. Chemical Research. *Credit according to work done.*

CLINICAL MEDICINE

ASSISTANT PROFESSOR VAN VALZAH; DR. MORRIS.

102. Clinical Laboratory Diagnosis. *M., Tu., W., Th., F.*, 9; *three credits.* DR. VAN VALZAH, DR. MORRIS.

103. Minor Surgery and Bandaging. *M., Tu., W., Th., F.*, 10; *two credits.* DR. VAN VALZAH, DR. MORRIS.

EDUCATION

PROFESSORS ELLIOTT, O'SHEA; ASSISTANT PROFESSORS MILLER, STARCH; MR. SEYBOLT; PROFESSOR SHARP; PROFESSOR DYKEMA.

1. History of Modern Education. *M., Tu., W., Th., F.*, 8; *two credits.* MR. SEYBOLT.

2S. The High-School Recitation. *M., Tu., W., Th., F.*, 11; *two credits.* MR. MILLER.

103. History of American Education. *M., Tu., W., Th., F.*, 9; *two credits.* MR. SEYBOLT.

108S. High School Organization. *M., Tu., W., Th., F.*, 10; *two credits.* MR. MILLER.

8f. The School Festival. Introductory. *M., Tu., W., Th., F.*, 11; *two credits.* MR. DYKEMA.

109S. Moral Education. *M., Tu., W., Th., F.*, 8; *two credits.* MR. SHARP.

9f. The Festival Movement. Advanced. *M., Tu., W., Th., F.*, 12; *two credits.* Mr. DYKEMA.

11. Mental Development. *M., Tu., W., Th., F.*, 9; *two credits.* MR. O'SHEA.

112. Social Education. *M., Tu., W., Th., F.*, 10; *two credits.* MR. O'SHEA.

233. Supervision of Instruction. *M., Tu., W., Th., F.*, 8; *two credits.* MR. ELLIOTT.

234. School Efficiency. *M., Tu., W., Th., F.*, 9; *two credits.* MR. ELLIOTT.

244. Advanced Educational Psychology. *M., Tu., W., Th., F.*, 11; *two credits.* MR. STARCH.

ENGLISH

ASSOCIATE PROFESSORS YOUNG, PYRE; ASSISTANT PROFESSORS BEATTY, DODGE, LEONARD, WOOLLEY; DR. MANCHESTER, DR. WATT.

A. Sub-freshman English. *M., Tu., W., Th., F.*, 8; *M., W., F.*, 9. MR. WOOLLEY.

1. Freshman English. *M., Tu., W., Th., F.*, 8; *M., W., F.*, 9; *three credits.* MR. WATT.

1A. Advanced Freshman English. *M., Tu., W., Th., F.*, 10; *M., W., F.*, 11; *three credits.* MR. WATT.

4S. Advanced Composition. *M., Tu., W., Th., F.*, 8; *two credits.* MR. DODGE.

30. General Survey of English Literature from Swift to SWINBURNE. *M., Tu., W., Th., F.*, 10; *M., W., F.*, 11; *three credits.* MR. DODGE, MR. LEONARD.

40S. American Literature. *M., Tu., W., Th., F.*, 11; *two credits.* MR. MANCHESTER.

34. Romantic Movement. *M., Tu., W., Th., F.*, 9; *two credits.* MR. LEONARD.

50a. The Teaching of English Composition. *M., Tu., W., Th., F.*, 11; *two credits.* MR. WOOLLEY.

50b. The Teaching of Literature. *M., Tu., W., Th., F.*, 12; *two credits.* MR. MANCHESTER.

110S. Chaucer. *M., Tu., W., Th., F.*, 9; *two credits.* MR. BEATTY.

111S. Shakspere. *M., Tu., W., Th., F.*, 10; *two credits.* MR. PYRE.

112S. Victorian Prose Writers. *M., Tu., W., Th., F.*, 10; *two credits.* MR. YOUNG.

113S. The Novels of George Meredith. *M., Tu., W., Th., F.*, 11; *two credits.* MR. PYRE.

214S. Hamlet. *M., W., F.*, 11 *to* 12:40; *two credits.* MR. YOUNG.

?15S. Shelley. *M., Tu., W., Th., F.*, 8; *two credits.* MR. BEATTY.

GEOGRAPHY AND GEOLOGY

ASSOCIATE PROFESSORS WHITBECK, MARTIN.

1S. Elementary Geology. *M., Tu., W., Th., F.*, 8; *two credits.* MR. MARTIN.

2. Geography of Europe. *M., W., F.*, 9; *one credit.* MR. MARTIN.

105S. Regional Geography. *Tu., Th.*, 9, *and a third hour to be arranged; one credit.* MR. MARTIN.

10S. Physical and Applied Geography. *M., Tu., W., Th., F.*, 8; *two credits.* MR. WHITBECK, MR. FINCH.

5S. Commercial and Industrial Geography. *M., Tu., W., Th., F.*, 10; *two credits.* MR. WHITBECK.

131. Summer Field Course in Physiography and Geology in the Baraboo Range. *August* 1 *to August* 29; *four or more credits.* MR. MARTIN.

GERMAN

PROFESSORS HOHLFELD, PROKOSCH (University of Texas), VOSS; ASSOCIATE PROFESSOR GOODNIGHT; ASSISTANT PROFESSORS KIND, MORGAN; DR. GILLET, MR. KELLER, DR. RITTINGHAUS.

1a. First Semester German. *M., Tu., W., Th., F.*, 10 *to* 12; *four credits.* MR. KELLER.

1b. Second Semester German. *M., Tu., W., Th., F.*, 10 *to* 12; *four credits.* MR. MORGAN.

2a. Third Semester German. *M., Tu., W., Th., F.*, 8 *to* 10; *four credits.* MR. GILLET.

2b. Fourth Semester German. *M., Tu., W., Th., F.*, 10; *two credits.* MR. KIND.

7A. Conversation. *M., Tu., W., Th., F.*, 8; *one credit.* Mr. RITTINGHAUS.

16. Prose Readings. *M., Tu., W., Th., F.*, 8; *two credits.* MR. KELLER.

20. Schiller. *M., Tu., W., Th., F.*, 9; *two credits.* Mr. KIND.

10. Composition and Grammar Review. *M., Tu., W., Th., F.*, 11; *two credits.* MR. VOSS.

50S. Kleist. *M., Tu., W., Th., F.*, 10; *two credits.* Mr. Gillet.

30. Germany and Its Institutions. *M., W., F.*, 9; *one credit.* Mr. Morgan.

112. Advanced Practice in Writing and Speaking German. *M., Tu., W., Th., F.*, 9; *two credits.* Mr. Rittinghaus.

114. The Teaching of German. *M., Tu., W., Th., F.*, 12; *two credits.* Mr. Prokosch.

131. Survey of Nineteenth Century Literature from 1832 to 1900. *M., Tu., W., Th., F.*, 10; *two credits.* Mr. Hohlfeld.

150. History of the German Language. *M., Tu., W., Th., F.*, 11; *two credits.* Mr. Prokosch.

153. Phonetics. *M., W., F.*, 10; *one credit.* Mr. Prokosch.

160S. Keller and Storm. *M., Tu., W., Th., F.*, 8; *two credits.* Mr. Goodnight.

155. Old High German. *M., W., F.*, 12; *one credit.* Mr. Voss.

238. Shakspere in Germany. *M., W., F.*, 11; *one credit.* Mr. Kind.

269. Philological Proseminary. *M., W., F.*, 9; *one credit.* Mr. Voss.

248. Literary Seminary. *Tu., Th.*, 11 *to* 1. Mr. Hohlfeld.

GREEK

Professor Charles Forster Smith.

A1. Elementary Greek. *M., Tu., W., Th., F.*, 12; *two credits.*

B. Xenophon's *Anabasis* or Homer according to demand. *M., W., F.*, 11; *one credit.*

113b. Greek Drama in English Translation (Plumptre). *Tu., Th.*, 11, *W.*, 4:30; *one credit.*

104. Greek Literature. *M., W., F.*, 10; *one credit.*

HISTORY

PROFESSORS DENNIS, PAXSON, SELLERY; ASSOCIATE PROFESSORS CHASE, WESTERMANN; ASSISTANT PROFESSOR ROOT.

1. Medieval History, 1095–1500. *M., Tu., W., Th., F.*, 9; *two credits.* MR. CHASE.
2. Modern Europe, 1815–1913. *M., Tu., W., Th., F.*, 11; *two credits.* MR. SELLERY.

4a. United States since 1830. *M., Tu., W., Th., F.*, 10; *two credits.* MR. ROOT.

10. History of Rome. *M., Tu., W., Th., F.*, 9; *two credits.* MR. WESTERMANN.

111. History of the West, 1837–1890. *M., Tu., W., Th., F.*, 10; *two credits.* MR. PAXSON.

119S. America and England, 1578–1715. *M., Tu., W., Th., F.*, 11; *two credits.* MR. ROOT.

10. History of Rome. *M., Tu., W., Th., F.*, 9; *two credits.* MR. WESTERMANN.

111. History of the West, 1837–1890. *M., Tu., W., Th., F.*, 10; *two credits.* MR. PAXSON.

119S. America and England, 1578–1715. *M., Tu., W., Th., F.*, 11; *two credits.* MR. ROOT.

127S. The Mediterranean World from Alexander to Augustus. *M., Tu., W., Th., F.*, 8; *two credits.* MR. WESTERMANN.

140. The Reformation. *M., Tu., W., Th., F.*, 10; *two credits.* MR. SELLERY.

143b. British Empire, 1815 to about 1865. *M., Tu., W., Th., F.*, 9; *two credits.* MR. DENNIS.

150. The Teaching of History. *M., Tu., W., Th., F.*, 11; *two credits.* MR. CHASE.

259. Seminary in History of the British Empire. *M., Tu., W., Th., F.*, 8; *two credits.* MR. DENNIS.

262. Seminary in American History. *M., Tu., W., Th., F.*, 8; *two credits.* MR. PAXSON.

JOURNALISM

MR. HYDE.

2. Newspaper Reporting. *M., Tu., W., Th., F.*, 10; *two credits.*

105. Writing of Special Articles. *M., Tu., W., Th., F.*, 11; *two credits.*

LATIN

PROFESSOR SHOWERMAN; ASSISTANT PROFESSOR BRANDT; MR.

B. Beginning Latin. *M., Tu., W., Th., F.*, 8 *to* 10; *two credits.* MR.

107. Writing Latin. *Tu., Th.*, 10, *with a third hour to be arranged; one credit.* MR. BRANDT.

108. Cicero's Letters. *M., Tu., W., Th., F.*, 8; *two credits.* MR. SHOWERMAN.

116. Teachers' Course. *M., W., F.*, 10; *one credit.* MR. BRANDT.

25S. Virgil. *M., Tu., W., Th., F.*, 9; *two credits.* MR. BRANDT.

26S. Seminary. Roman Archaeology. *Tu., Th.*, 8 *to* 10; *two or more credits.* MR. SHOWERMAN.

123. Public Lectures, illustrated. The Roman Monument. *Tu., Th.*, 10; *special assignments for those who wish credit.* MR. SHOWERMAN.

MANUAL ARTS

PROFESSORS CRAWSHAW, MACK, PHILLIPS; ASSISTANT PROFESSORS GODDARD, MILLAR, VARNUM; LECTURER JONES (Somerville, Ind.); MISS ANDERSON (Muncie, Ind.), MR. BADGER (Columbus, Ind.), MR. CHISHOLM, MR. DABNEY, MR. DORRANS, MR. GREGERSON, MR. JOHNSTON, MR. MACLIN, MR. PAYTON, MR. SCHUMANN, MR. SLADKY.

1S. The Teaching and Supervision of Drawing and Design. *M., Tu., W., Th., F.*, 8 *to* 10; *S.*, 8 *to* 12; *three credits.* MR. VARNUM.

2. Elements of Mechanical Drawing. *M., Tu., W., Th., F.; recitation or demonstration at* 11; *drawing hours,* 1:30 *to* 4:30; *three credits.* MR. PHILLIPS, MR. THOMAS.

2a. Elements of Mechanical Drawing. *M., Tu., W., Th., F.;* 11; *drawing hours,* 1:30 *to* 4:30; *three credits.* MR. MACLIN.

3. Descriptive Geometry. *M., Tu., W., Th., F.,* 11; *drawing hours,* 1:30 *to* 4:30; *three credits.* MR. MILLAR.

4. Elementary Woodwork. *M., Tu., W., Th., F.,* 8 *to* 10; *S.,* 8 *to* 12; *three credits.* MR. CRAWSHAW, MR. DORRANS.

5. Furniture and Cabinet Design and Construction. *M., Tu., W., Th., F.,* 1:30 *to* 4:30; *three credits.* MR. CRAWSHAW, MR. DORRANS.

6. Wood Turning. *M., Tu., W., Th., F.,* 8 *to* 10; *S.,* 8 *to* 12; *three credits.* MR. CHISHOLM.

6a. Pattern Making. *M., Tu., W., Th., F.,* 8 *to* 10; *S.,* 8 *to* 12; *three credits.* MR. CHISHOLM.

6b. Advanced Pattern Making. *M., Tu., W., Th., F.,* 1:30 *to* 4:30; *three credits.* MR. CHISHOLM.

7. Foundry Work. *M., Tu., W., Th., F.,* 8 *to* 10; *S.,* 8 *to* 12; *three credits.* MR. PAYTON, MR. CHISHOLM.

8. Forge Work. *M., Tu., W., Th., F.,* 8 *to* 10; *S.,* 8 *to* 12; *three credits.* MR. SCHUMANN, MR. GODDARD.

9. Machine Shop Work. *M., Tu., W., Th., F.,* 1:30 *to* 4:30; *three credits.* MR. GODDARD, MR. DABNEY, MR. SLADKY.

13. Clay and Pottery. *M., Tu., W., Th., F.,* 1:30 *to* 4:30; *three credits.* MR. VARNUM, MISS ANDERSON.

14. Decorative Metal. *M., Tu., W.. Th., F.,* 8 *to* 10; *S.,* 8 *to* 12; *three credits.* MR. VARNUM, MISS ANDERSON.

15S. Architectural Drafting. *M., Tu., W., Th., F.,* 8 *to* 10; *S.,* 8 *to* 12; *three credits.* MR. JONES.

16S. Architectural Construction. *M., Tu., W., Th., F.,* 1:30 *to* 4:30; *three credits.* MR. JONES.

17S. Cement and Concrete Construction. *M., Tu., W., Th., F.,* 8 *to* 10; *S.,* 8 *to* 11. MR. BADGER.

11. Organization. *M., Tu., W., Th., F.,* 10; *two credits.* MR. CRAWSHAW.

12. Vocational Education and Guidance. *M., W., F.,* 4:30; *one credit.* MR. CRAWSHAW.

B. Machine Design for Teachers of Manual Arts. *Lectures, M., W., F.*, 11; *drawing, all courses, M., W., F.*, 8 *to* 11; *Tu., Th.*, 1:30 *to* 4:30; *two credits.* MR. MACK.

MATHEMATICS

PROFESSOR SLICHTER; ASSOCIATE PROFESSOR SKINNER; ASSISTANT PROFESSORS HART, MARCH, WOLFF; MR. SIMPSON.

100. Algebra. *M., Tu., W., Th., F.*, 11; MR. SIMPSON.
1. Algebra. *M., Tu., W., Th., F.*, 11; *two credits.* MR. SLICHTER.
2. Solid Geometry. *M., Tu., W., Th., F.*, 12; *two credits.* MR. HART.
3. Plane Trigonometry and Logarithms. *M., Tu., W., Th., F.*, 9; *two credits.* MR. SIMPSON.
4. Analytic Geometry. *M., Tu., W., Th., F.*, 10; *two credits.* MR. HART.
5a. Calculus. *M., Tu., W., Th., F.*, 11; *two credits.* MR. MARCH.
5b. Calculus. *M., Tu., W., Th., F.*, 11; *two credits.* MR. SKINNER.
6. Analytic Geometry of Three Dimensions. *M., Tu., W., Th., F.*, 12; *two credits.* MR. SIMPSON.
8. Integral Calculus. *M., Tu., W., Th., F., S.*, 8 *and* 12; *four credits.* MR. WOLFF.
122. The Teaching of Secondary Mathematics. *M., Tu., W., Th., F.*, 8; *two credits.* MR. HART.
112. Differential Equations. *M., Tu., W., Th., F.*, 8; *two credits.* MR. MARCH.
112b. Partial Differential Equations. *M., W., F.*, 12; *one credit.* MR. SLICHTER.
113. Mechanics. *M., Tu., W., Th., F.*, 10; *two credits.* MR. SLICHTER.
119. Differential Geometry. *M., Tu., W., Th., F.*, 8; *two credits.* MR. SKINNER.
120. Conformal Representation. *M., W., F.*, 9; *one credit.* MR. SKINNER.
265. Fourier Series and Fourier Double Integrals. *M., Tu., W., Th., F.*, 9; *two credits.* MR. MARCH.

METEOROLOGY

MR. E. R. MILLER, OF THE U. S. WEATHER BUREAU.

1. Weather and Climate. *M., Tu., W., Th., F.*, 11; *two credits.*

7S. Physics of the Globe. *Tu., Th.*, 3:30; *one credit.*

MUSIC

PROFESSORS COERNE, DYKEMA; MISS CONLON, MR. MANN, MRS. SANDBERG, MRS. SANDERS, MR. ZANZIG (Ethical Culture School, New York).

7S. General Technical Aspects of Music. *M., Tu., W., Th., F.*, 9; *two credits.* MR. COERNE.

37S. Public School Music, Elementary. *M., Tu., W., Th., F.*, 8; *two credits.* MISS CONLON.

45S. Principles of Instrumental Instruction. *M., Tu., W., Th., F.*, 12; *two credits.* MR. ZANZIG.

57S. Public School Music, Advanced. *M., W., Th.*, 9; *Tu., W., F.*, 9; *three or five recitations; one or two credits.* MISS CONLON.

71. Appreciation of Music. *M., Tu., W., Th., F.*, 11; *two credits.* MR. COERNE.

81 (2). Applied Music. *Pianoforte. *Hours to be arranged; one credit.* MRS. SANDBERG.

81 (4). Applied Music. *Voice Culture. *Hour to be arranged; one credit.* MRS. SANDERS.

*Fees for individual instruction in Pianoforte and Voice Culture: one dollar per half-hour, payable to the Bursar of the University.

92S. Orchestra. *M., W., F.*, 4:30; *one credit.* MR. MANN.

94S. Band. *Tu., Th.*, 4:30 *to* 6; *one credit.* MR. MANN.

97S. Community Music. *M., Tu., W., Th., F.*. 10; *three or five recitations; one or two credits.* MR. DYKEMA.

(Related Courses. The following will be found helpful as supplementing music courses: Education 8f and 9f Festivals); Physical Education 12S, 143, and 146.)

PHARMACY

MR. LANGENHAN.

20. Prescription Practice. *Hours to be arranged; three credits.*
121. Advanced Prescription Practice. *Hours to be arranged; four credits.*
30. Pharmaceutical Technology. *Hours to be arranged; two credits.*

PHILOSOPHY

PROFESSOR MCGILVARY; ASSISTANT PROFESSORS OTTO, STARCH.

1. Psychology. *M., Tu., W., Th., F.,* 8; *two credits.* MR. STARCH.
3S. Philosophy and Life. *M., Tu., W., Th.. F.,* 10; *two credits.* MR. MCGILVARY.
11. Logic. *M., Tu., W., Th., F.,* 9; *two credits.* MR. OTTO.
25. Man and Nature. *M., W., F.,* 8; *one credit.* MR. OTTO.
108S. Idealism, Pragmatism, and Realism. *M., Tu., W.. Th., F.,* 11; *two credits.* MR. MCGILVARY.
109. Moral Education. *M., Tu., W., Th., F.,* 8; *two credits.* MR. SHARP.
213. Advanced Logic. *Tu., Th.,* 8, *and a third hour to be arranged; one credit.* MR. OTTO.

PHYSICAL EDUCATION AND PLAY

PROFESSOR EHLER; ASSISTANT PROFESSORS ELSOM, MEANWELL, TRILLING; MISS BROWN, MR. BURKE; MR. JONES, MISS LANE, AND ASSISTANTS.

12S. Elements of Physical Education and Play. *M., Tu., W., Th., F.,* 9; *two credits.* MR. EHLER.
14S. Secondary School Physical Education. *M., W., F.,* 10; *one credit.* MR. JONES.
15S. Scoutcraft and Camp Fire Girls. *Tu., Th., S.,* 10; *one credit.* MR. ELSOM.

16. First Aid to the Injured. *M., W., F.*, 12; *one credit.* MR. ELSOM.

17S. Physical Examination of School Children. *M., W., F.*, 11; *one credit.* MR. ELSOM.

18S. Principles of Coaching and Training. *M., W., F.*, 11; *one credit.* MR. JONES.

20S. School Gymnastics and Games—Elementary. *M., Tu., W., Th., F.*, 12; *one credit.* MISS LANE.

21S. Swimming. *Men's classes, Tu., Th., S.*, 4:30; *women's classes, M., W., F.*, 4:30; *Tu., Th., S.*, 11. MR. ELSOM AND ASSISTANTS.

110. Physical Education in Elementary Schools. *M., Tu., W., Th., F.*, 10; *two credits.* MR. EHLER.

116. Playgrounds, Conduct and Management. *M., W., F.*, 8; *Tu., Th.*, 2:30, jointly with courses 122 and 142; *one credit.* MR. MEANWELL.

121. Gymnastics for Boys. *M., Tu., W., Th., F.*, 11; *one credit.* MR. BURKE.

122. Playground Activities for Boys. *M., Tu., W., Th., F.*, 2:30; *practice teaching as assigned; one credit.* MR. MEANWELL.

123. Basketball. *M., W., F.*, 3:30; *one credit.* MR. MEANWELL. *W., Th., F.*, 3:30; *one credit.* MISS TRILLING.

124. Track and Field Events. *M., Tu., W., Th., F.*, 3:30; *one credit.* MR. JONES.

126. Gymnastic Dancing. *M., W., F.*, 12; *one credit.* MR. BURKE.

129. Football. *M., Tu., W., Th., F.*, 4:30; *one credit.* MR. JONES.

141. Gymnastics for Girls. *M., Tu., W., Th., F.*, 12; *one credit.* MISS BROWN.

142. Playground Activities for Girls. *M., Tu., W., Th., F.*, 2:30; *one credit.* MISS BROWN.

143. Singing, Games, and Elementary Folk Dancing. *M., Tu., W., Th., F.*, 3:30; *one credit.* MISS TRILLING.

144. Field Hockey, Basketball, Baseball for Girls. *M., Tu., W., Th., F.*, 4:30; *one credit.* MISS BROWN.

146. Aesthetic and Advanced Folk Dancing. *M., Tu., W., Th., F.*, 2:30; *one credit.* MISS TRILLING.

150. Archery. *Hours by special appointment.* MISS BROWNELL.

PHYSICS

PROFESSOR MASON; ASSISTANT PROFESSOR ROEBUCK, TERRY; MR. STOEKLE.

1a. General Lectures. *M., Tu., W., Th., F.*, 12, *with one recitation per week at hours to be arranged; two credits.* MR. ROEBUCK.

1b. General Laboratory Practice. *Ten hours per week; one credit for each thirty hours of work performed.* MR. ROEBUCK, MR. STOEKLE.

20S. Experimental Lectures for High-School Teachers. *M., Tu., W., Th., F.*, 4:30; *no academic credit.* MR. TERRY.

4. Advanced Lectures on Electricity and Magnetism. *M., Tu., W., Th., F.*, 8; *two credits.* MR. TERRY.

5. Advanced Laboratory Practice in Electricity and Magnetism. Designed to accompany course 4. *M., Tu., W., Th., F.*, 1:30 *to* 5:30; *one credit for each thirty hours of work performed.* MR. TERRY, MR. STOEKLE.

105S. The Concepts of Mathematics and their Application. *M., W., F.*, 8; *one credit.* MR. MASON.

112. Introduction to the Mathematical Theory of Electricity. *M., Tu., W., Th., F.*, 10; *two credits.* MR. MASON.

208S. The Kinetic Theory of Gases. *M., Tu., W., Th., F.*, 11; *two credits.* MR. MASON.

POLITICAL ECONOMY

PROFESSORS COMMONS, GILMAN, HIBBARD, ROSE, SCOTT, URDAHL; ASSOCIATE PROFESSOR GILLIN; ASSISTANT PROFESSOR ELWELL; MR. KIEKHOEFER.

1a. Elements of Economic Science. *M., Tu., W., Th., F.*, 8 *to* 10; *four credits.* MR. URDAHL, MR. KIEKHOEFER.

123a. Labor Problems. *M., Tu., W., Th., F.*, 11; *two credits.* MR. COMMONS.

128. Co-operation and Marketing. *M., Tu., W., Th., F.*, 8; *two credits.* MR. HIBBARD.

137. Corporation Problems. *M., Tu., W., Th., F.*, 10; *two credits.* MR. URDAHL.

144. Socialism. *M., W., F.*, 12; *one credit.* MR. KIEKHOEFER.

212. Economic Conference. *Required of all candidates for M. A. in Economics. Tu.*, 8 P. M.

264. Value and Valuation. *M., Tu., W., Th., F.*, 9; *two credits.* MR. COMMONS.

Business Administration.

8a. Elements of Accounting. *M., Tu., W., Th., F.*, 10; *two credits.* MR. ELWELL.

108b. Theory and Practice of Accounting. *M., Tu., W., Th., F.*, 8; *two credits.* MR. ELWELL.

108d. Business Organization and Management. *M., Tu., W., Th., F.*, 11; *two credits.* MR. GILMAN.

109. Commercial Law. *M., Tu., W., Th., F.; two credits.* MR. GILMAN.

Sociology.

140. General Sociology. *M., Tu., W., Th., F.*, 9; *two credits.* MR. ROSS.

141. Poverty and Relief. *M., Tu., W., Th., F.*, 8; *two credits.* MR. GILLAN.

141a. Criminology and Penology. *M., Tu., W., Th., F.*, 10; *two credits.* MR. GILLIN.

260. Seminary on Cities. *M., Tu., W., Th., F.*, 11; *two credits.* MR. ROSS.

10S. Sociological Conference. *W.*, 8 *to* 10 P. M. MR. ROSS, MR. GILLIN.

5. Banking. *M., Tu., W., Th., F.*, 8; *two credits.* MR. SCOTT.

251b. History of Political Economy. *M., Tu., W., Th., F.*, 11; *two credits.* MR. SCOTT.

POLITICAL SCIENCE

2. Elementary Law. *M., Tu., W., Th., F.*, 10; *two credits.* MR. HALL.

7. Federal Government. *M., Tu., W., Th., F.*, 8; *two credits.* MR. LLOYD-JONES.

112. American Constitutional Law. *M., Tu., W., Th., F.*, 11; *two credits.* MR. HALL.

122. Party Government. *M., Tu., W., Th., F.*, 9; *two credits.* MR. LLOYD-JONES.

PUBLIC SPEAKING

ASSOCIATE PROFESSOR O'NEILL; MISS JOHNSON, MR. HOUGHTON.

8. Extempore Speaking. *M., W., F.,* 9; *one credit.* MR. HOUGHTON.
12. Fundamentals of Vocal Expression. *M., W., F.,* 8 *and* 9; *one credit.* MISS JOHNSON.
15. Practical Public Speaking. *M., W., F.,* 8; *one credit.* MR. HOUGHTON.
16. Interpretative Reading. *M., W., F.,* 10; *one credit.* MISS JOHNSON.
18. Round Table Discussion. *Tu., Th.,* 2:30 *to* 4:00; *one credit.* MR. O'NEILL, MISS JOHNSON.
35S. Argumentation and Debate for Teachers. *M., W., F.,* 8 *and* 9; *one credit.* MR. O'NEILL.
36S. Speech Composition, Oral and Written. *M., W., F.,* 11; *one credit.* MR. O'NEILL.

ROMANCE LANGUAGES

PROFESSOR SMITH; ASSOCIATE PROFESSOR GIESE; ASSISTANT PROFESSORS GAY, MICHELL; MR. COUSINS, MR. MILLER.

FRENCH

1. Beginners' French. *M., Tu., W., Th., F.,* 8 *to* 10; *four credits.* MR. COUSINS. *M., Tu., W., Th., F.,* 10 *to* 12; *four credits.* MR. MICHELL.
12S. Second Semester French. *M., Tu., W., Th., F.,* 11; *two credits.* MR. COUSINS. *M., Tu., W., Th.,* 12; *two credits.* MR. MILLER.
12aS. Intermediate French. *M., Tu., W., Th., F.,* 8; *two credits.* MR. MICHELL.
13S. Advanced French. *M., Tu., W., Th., F.,* 10; *two credits.* MR. SMITH.
14. Grammar and Composition. *M., W., F.,* 9; *one credit.* MISS GAY.

15. Elementary Conversation. *M., Tu., W., Th., F.*, 8; *one credit.* Miss Gay.
16. Intermediate French Conversation. *M., W., F.*, 9; *one credit.* Mr. Giese.
127. Advanced Conversation. *M., W., F.*, 11; *one credit.* Mr. Giese.
128S. Modern French Prose Drama. *M., Tu., W., Th., F.*, 11; *two credits.* Mr. Smith.
129S. Classic French Literature. *Tu., Th.*, 10, *with a third hour to be arranged; one credit.* Mr. Giese.
130S. Romantic School. *M., Tu., W., Th., F.*, 8; *two credits.* Mr. Giese.
131S. Contemporary French Novelists. *M., W., F.*, 9; *one credit.* Mr. Michell.
232S. Old French. *M., W., F.*, 12 *(hour subject to change); one credit.* Miss Gay.
233S. Old French Literature. *Tu., Th.*, 9, *with a third hour to be arranged; one credit.* Mr. Smith.
234S. Research in French. Mr. Smith, Mr. Giese.

ITALIAN

135S. Elementary Italian. *M., Tu., W., Th., F.*, 10; *two credits.* Miss Gay.
236S. Italian Literature. Miss Gay.

SPANISH

1. Elementary Spanish. *M., Tu., W., Th., F.*, 8; *M., W., F.*, 9; *three credits.* Mr. Miller.
138S. Advanced Spanish. *Tu., Th.*, 9, *with a third hour to be arranged; one credit.* Mr. Miller.
239S. Research in Spanish.

ZOOLOGY

PROFESSOR GUYER; ASSOCIATE PROFESSOR PEARSE; MR. FASTEN.

6. Heredity and Eugenics. *M., Tu., W., Th., F.*, 11; *two credits.* MR. GUYER.
7. Animal Biology. Lectures, *M., W., F.*, 8; *laboratory or outdoor work*, 10 *hours per week, forenoons; three credits.* MR. GUYER, MR. PEARSE, MR. FASTEN.

103. Field Zoology and Natural History. *Lectures, Tu., Th.*, 9; *field and laboratory work*, 8 *hours per week; two credits.* MR. PEARSE.
8. Organic Evolution. *M., W., F.*, 9; *one credit.* MR. GUYER.
105. Special Problems. MR. GUYER, MR. PEARSE.
120. The Teaching of Zoology (or Biology). *Lectures, Tu., Th.*, 8; *one credit.* MR. PEARSE.
228. Research. *Hours to be arranged.*

COLLEGE OF ENGINEERING

CHEMICAL ENGINEERING

ASSISTANT PROFESSOR KOWALKE.

114. Chemical Manufacture. Required of chemical engineers. *First four weeks; hours to be arranged; four credits.*

ELECTRICAL ENGINEERING

ASSISTANT PROFESSOR SHUSTER.

103a. Continuous Currents. *M., Tu., W., Th., F.*, 10; *M., W., F.*, 11; *three credits.*
130. Testing Direct-Current Dynamos. *One or two credits.*
112a. Testing Alternating Current Machinery and Appliances. *One or two credits.*
126. Theses.
A. Special Work.

HYDRAULIC ENGINEERING

ASSISTANT PROFESSOR CORP.

1. Hydraulics. *M., Tu., W., Th., F.,* 8; *three or four credits.*
102. Testing of Hydraulic Machines. *Hours to be arranged; two credits.*
103. Experimental Hydraulics.

MACHINE DESIGN

PROFESSOR MACK.

A. Elementary Design. *No credit.*
1. Mechanism. *Credit and hours to be arranged.*
2. Machine Elements. *Credit and hours to be arranged.*
4. Design of Complete Machines. *Credit and hours to be arranged.*
B. Machine Design for Teachers of Manual Arts. *Lectures, M., W., F.,* 11; *drawing, all courses, M., W., F.,* 8 *to* 11; *Tu., Th.,* 1:30 *to* 4:30; *two credits on Manual Arts course.*

MECHANICAL DRAWING

PROFESSOR PHILLIPS; ASSISTANT PROFESSOR MILLER; MR. MACLIN; MR. THOMAS.

1. Elements of Drawing 1. *Recitation, M., Tu., W., Th., F.,* 11; *drawing period, M., Tu., W., Th., F.,* 1:30 *to* 4:30; *three credits.* MR. PHILLIPS, MR. THOMAS.
2. Elements of Drawing II. *Recitation, M., Tu., W., Th., F.,* 11; *drawing period, M., Tu., W., Th., F.,* 1:30 *to* 4:30; *three credits.* MR. MACLIN.
3. Descriptive Geometry. *Recitation, M., Tu., W., Th., F.,* 11; *drawing period, M., Tu., W., Th., F.,* 1:30 *to* 4:30; *three credits.* MR. MILLAR.

APPLIED MECHANICS

ASSISTANT PROFESSOR KOMMERS; MR. ROARK.

1. Statics. *M., Tu., W., Th., F.*, 8; *M. W., F.*, 2:30; *three credits.* MR. KOMMERS.
2. Dynamics. *M., Tu., W., Th., F.*, 11; *two credits.* MR. KOMMERS.

3a. Mechanics of Materials. *M., Tu., W., Th., F.*, 11; *two credits.* MR. ROARK.

3b. Mechanics of Materials. *M., Tu., W., Th., F.*, 10; *M., W., F.*, 1:30; *three credits.* MR. ROARK.

51, 52, 53. Materials of Construction. *Hours to be arranged; two credits.*

8. Laboratory Research in the Materials of Construction. *Hours and credit to be arranged.*

SHOP WORK

SUPERINTENDENT GODDARD; MR. CHISHOLM, MR. DABNEY, MR. PAYTON, MR. SCHUMANN, MR. SLADKY, MR. ZURIAN.

1. Elementary Pattern Making. *M., Tu., W., Th., F.*, 1 *to* 4; *one credit.* MR. CHISHOLM.
2. Bench Work in Iron. *M., Tu., W., Th., F.*, 1 *to* 4; *one-half credit.* MR. DABNEY, MR. SLADKY.
3. Elementary Forge Work. *M., Tu., W., Th., F.*, 1 *to* 4; *one-half credit.* MR. SCHUMANN.
4. Lathe Work in Metals. *M., Tu., W., Th., F.*, 1 *to* 5; *one credit.* MR. DABNEY, MR. SLADKY.
5. Planing and Milling. *M., Tu., W., Th., F.*, 1 *to* 5; *one credit.* MR. DABNEY, MR. SLADKY.
6. Tool Making. *M., Tu., W., Th., F.*, 1 *to* 5; *two credits.* MR. DABNEY, MR. SLADKY.
7. General Shop Work. *M., Tu., W., Th., F.*, 1 *to* 5; *from one to four credits.* MR. DABNEY, MR. SLADKY.
8. Heat Treatment of Steel. *M., Tu., W., Th., F.*, 1 *to* 5; *one credit.* MR. GODDARD, MR. SCHUMANN.
9. Advanced Pattern Making and Foundry Practice. *M., Tu., W., Th., F.*, 2 *to* 4; *one credit.* MR. CHISHOLM, MR. PAYTON.

STEAM AND GAS ENGINEERING

MR. BLACK.

A. Steam Turbines. *M., W., F.,* 8; *one credit.*

B. Gas Engines and Gas Producers. *M., W., F.,* 9; *one credit.*

C. Compressed Air. *Hours to be arranged; one credit.*

D. Heating and Ventilating. *Lectures; hours to be arranged; one credit.*

E. Calibration of Laboratory Instruments. *M., W.,* 1:30 *to* 5:30; *one credit.*

F. Continuation of Course E. *Hours to be arranged; one credit.*

G. Refrigeration and Refrigerating Machinery. *Hours to be arranged; one credit.*

SURVEYING

ASSOCIATE PROFESSOR SMITH; MR. BEEBE, MR. MORRIS, MR. OWEN, MR. WISKOCIL, MR. E. K. SMITH.

1. Elementary Surveying. *Lectures, M., Tu., W., Th., F.,* 10, *first two weeks;* 50 *hours of field work to be arranged; two credits.* MR. OWEN.
2. Elementary Surveying. *Lectures, M., Tu., W., Th., F.,* 10, *second two weeks;* 50 *hours of field work to be arranged; two credits.* MR. OWEN.
3. Elementary Surveying. *Recitation, M., Tu., W., Th., F.,* 11, *for first three weeks; field work, about* 15 *hours, to be arranged; two credits.* MR. OWEN.
4. Advanced Surveying. *Recitations, M., Tu., W., Th., F.,* 11, *for last three weeks; field work, 50 hours, to be arranged; three credits.* MR. OWEN.
6. Trigonometric Survey at Devil's Lake, Wis. *Begins about June 13 and continues four weeks; credit according to work accomplished.* PROFESSOR SMITH, MR. MORRIS, MR. WISKOCIL, MR. E. K. SMITH AND ASSISTANT. Chief Engineer elected by students.

8. A special course for electrical and mechanical engineering students. *Recitation, M., Tu., W., Th., F.,* 11; *field hours to be arranged;* 50 *field hours required; three credits.*

Mining Survey. *Hours and credit to be arranged.* Mr. Owen.

LAW SCHOOL

Professors Ballantine, Lorenzen, Richards, Smith.

First Year

Criminal Law. *Four hours a week for ten weeks; two and two-thirds credits.* Mr. Smith.

Torts. *Eight hours a week for ten weeks; five and one-third credits.* Mr. Lorenzen.

Second and Third Years

Agency. *Four hours a week for ten weeks; two and two-thirds credits.* Mr. Richards.

Equity II. *Four hours a week for ten weeks; two and two-thirds credits.* Mr. Richards.

Property III. *Four hours a week for ten weeks; two and two-thirds credits.* Mr. Ballantine.

Sales. *Four hours a week for ten weeks; two and two-thirds credits.* Mr. Smith.

COLLEGE OF AGRICULTURE

AGRICULTURAL BACTERIOLOGY

Mr. Wright.

1S. Agricultural Bacteriology. *Lectures, M., W., F.,* 9; *laboratory, Tu., Th.,* 2:30 *to* 4:30; *two credits.*

2S. Agricultural Bacteriology, laboratory. *M., Tu., W., Th., F.,* 10 *to* 12; *two credits.*

230. Research Work in Agricultural Bacteriology. *Ten weeks; three to five credits.*

AGRICULTURAL CHEMISTRY

ASSISTANT PROFESSOR TOTTINGHAM; MR. DRESCHER.

1S. General Agricultural Chemistry. *Lectures, M., Tu., W., Th., F.,* 8; *two credits; laboratory, Tu., Th.,* 9 *to* 11; *three credits.* MR. TOTTINGHAM.

3. Household Chemistry. *M., Tu., W., Th., F.,* 10 *to* 12; *two or three credits.* MR. DRESCHER.

AGRICULTURAL ECONOMICS

PROFESSORS OTIS, TAYLOR, HIBBARD.

1S. Rural Economics. *Lectures, M., Tu., W., Th., F.,* 11; *two credits.* MR. TAYLOR.

128. Co-operation and Marketing. *Hours to be arranged; two credits.* MR. HIBBARD.

102S. Traveling Field Course in Methods of Farm Management. *Credit according to work done, with a maximum of six credits.*

AGRICULTURAL EDUCATION

PROFESSOR HATCH.

1. Agricultural Education. *M., Tu., W., Th., F.,* 4:30; *two credits.*

AGRICULTURAL ENGINEERING

MR. WHITE.

1. General Agricultural Engineering. *Lectures, Tu., Th.,* 8; *laboratory, M., W., F.,* 10 *to* 12; *two credits.*

AGRONOMY

PROFESSOR R. A. MOORE; ASSISTANT PROFESSOR STONE; MR. LEITH.

1. General Outline of Agronomy. *Lectures, M., W., F.*, 8; *laboratory, Tu., Th.*, 11 *to* 1; *two credits.* Mr. MOORE, Mr. LEITH.

19. Thesis and Field Course. *Ten weeks; days and hours to be arranged; two to four credits.* Mr. LEITH.

120. Weed Identification and Seed Inspection. *Lectures, Tu., Th.*, 10; *laboratory, M., W., F.*, 10 *to* 12; *two credits.* Mr. STONE.

ANIMAL HUSBANDRY

ASSISTANT PROFESSOR FULLER.

1. Elementary Live Stock Judging. *Lectures, Tu., Th.*, 8; *laboratory, M., W., F.*, 11 *to* 1; *two credits.*

2. Live Stock Practice. *Lectures, M., W., F.*, 9; *laboratory, Tu., Th.*, 2:30 *to* 4:30; *two credits.*

DAIRY HUSBANDRY

PROFESSOR FARRINGTON; ASSISTANT PROFESSOR BENKENDORF.

1. Testing and Handling Milk and its Products. *Lectures, Tu., Th.*, 9; *laboratory, M., W., F.*, 2:30 *to* 4:30; *two credits.* Mr. FARRINGTON, Mr. BENKENDORF.

102S. Dairy Practice. *Ten weeks; hours to be arranged; one credit for each forty-eight hours of work in the various departments, with a maximum of four credits.* Mr. BENKENDORF.

ECONOMIC ENTOMOLOGY AND PLANT PATHOLOGY

ASSOCIATE PROFESSOR SANDERS; MR. JOHNSON.

101S. Economic Entomology. *First three weeks, M., Tu., W., Th., F.*, 2:30 *to* 5:30; *two credits.* MR. SANDERS.

1S. Plant Pathology. *Last three weeks, M., Tu., W., Th., F.*, 2:30 *to* 4:30; *two credits.* Mr. JOHNSON.

HOME ECONOMICS

PROFESSOR MARLATT; ASSISTANT PROFESSOR SCHMIT; MISS BUNNELL, MISS ECKHARDT, MISS FLEMING, MISS PEASE, MISS SCHOLES, MISS SCOVILL.

1S. Foods. *Lectures, Tu., Th.*, 9; *laboratory, M., Tu., Th.*, 10 *to* 12; *two credits.* Miss SCHOLES.

2S. Economic Problems of Food Supply. *Lectures, Tu., Th.*, 8; *laboratory, M., Tu., Th.*, 2:30 *to* 4:30; *two credits.* Miss FLEMING.

3S. Millinery. *Lectures, Tu., Th.*, 2:30; *laboratory, W., F.*, 10 *to* 12; *W.*, 2:30 *to* 4:30; *two credits.* Miss SCHMIT, Miss SCOVILL.

6S. Nutrition and Dietetics. *Lectures, M., Tu., W., Th., F.*, 10; *two laboratory periods per week; two credits.* Miss MARLATT.

7S. Humanics. *M., Tu., W., Th., F.*, 10; *two credits.* Miss MARLATT.

8S. Textiles. *Tu., Th.*, 10; *laboratory, two credits.* Miss ECKHARDT.

11S. Manufacture and Selection of Clothing. *Lectures, M., W.*, 11; *two laboratory periods per week to be arranged; three credits.* Miss ECKHARDT, Miss TURNER, Miss SCOVILL.

HORTICULTURE

ASSOCIATE PROFESSOR MOORE.

1. Principles of Fruit Growing. *Lectures, M., Tu., W., Th., F.,* 10; *two credits.*

2S. Horticultural Practice. *Lectures, Tu., Th.,* 9; *laboratory, M., W., F.,* 8 *to* 10; *two credits.*

POULTRY HUSBANDRY

ASSOCIATE PROFESSOR HALPIN

1. Elementary Poultry Raising. *M., Tu., W., Th., F.,* 8; *two credits.*

2. Elementary Poultry Raising. *M., Tu., W., Th., F.,* 10; *two credits.*

SOILS

PROFESSOR WHITSON; MR. GRAUL.

1S. Elementary Soils. *Lectures, M., W., F.,* 11; *laboratory, Tu., Th.,* 11 *to* 1; *two credits.* MR. WHITSON, MR. GRAUL.

2S. Laboratory Course in Soils. *Laboratory, M., Tu., W., Th., F.,* 2:30 *to* 4:30; *two credits.* MR. GRAUL.

103S. Soil Management and Mapping. *M., W., F.,* 9; *S.,* 8 *to* 12; *two credits.* MR. WHITSON.

DEGREES

CONFERRED ON COMMENCEMENT DAY, 1913

COLLEGE OF LETTERS AND SCIENCE

BACHELOR OF ARTS

Winnifred Abaly
Margaret Adam
*Hazel Campbell Ahrens
Charlotte Albert
Thomas Dyer Allen
Donald Dewey Allison
Robert Leslie Alton
Anna Marie Anderson
Fred Anderson
Margaret Anderson
*Ben Albert Arneson
Leah Arnold
Anthony Edward Baldauf
Meta Christine Bandelin
Walter Almer Barrows
Jeanne Savate 'de La Barthe
Walter John Bauman
*Sterling Stanley Beath
Anita Else Bechtel
*Thorvald Martin Beck
Herbert William Becker
Neven Ottilia Betz
*Ruth Birchard
Samuel Bruce Black
Mary Cecelia Bonino
Judson Powell Boulware
Elmore Alfred Bourbeau
Francis Charles Boutin
Aleda May Bowman
Ethel Belle Bradshaw
Adolph Rudolph Braun
Herbert Wendell Brightman
*Cornelia Yates Brown
Harlow Blair Brown
*Theodore Gustave Buchholz
Pauline Merry Buell
Nell Reubena Bundy
Margery Eleanor Burke
Alfred Joseph Buscheck
Nellie Eileen Bussell
Margaret Jane Byrne
Blanche Ione Canright
*Edna Edith Cantril
Kathleen Comerford Carey
William Herbert Carey
Harold Per Lee Cary
Cyrus Ambrose Casey
Hazel Hortense Chapman
Henry Louis Chesick
George West Christie
Chin Chu
Loh Chu
Florence Rosalie Clausen
Gertrude Samantha Clayton
*Lillian Emily Coapman
Irene Margaret Collins
Ruth Elizabeth Collins
*Mabel Adella Colton
Ross Kelly Conaway
Mary A. Cook
Bernadette Corry
Fannie Edith Cox
Guy Walter Crane
*John Jennings Crawford

*Degree conferred since commencement, 1913.

Eulalia Hattie Croll
Jennie Gertrude Crowley
Emory Blake Curtis
Lydia Irma Dallwig
Hilda Josephine Danielson
Elizabeth Waples Davis
Helen W. Deming
Agnes Woodworth Dickerson
Florence Elizabeth Dodd
Genevieve Dreutzer
Lina Naomi Duffy
Joseph Bernard Eagan
Margaret Olivia Eberle
*Charles William Ellis
Frances Catherine Ellman
Dorothy Belle Ely
Boris Emmett
Clarence Erikson
Irma Etsell
Arthur Edward Etter
Johan Lewis Fagerland
Angelica Anne Fauerbach
Harriet Elizabeth Faville
*Ellen Marie Feuling
*Harriet Josephine Fink
Harriette Hilton Fish
*Earl Ellsworth Fisk
*Lawrence Allen Flagler
Belle Fligelman
Marie Rosamond Flower
Kate Agnes Foley
Marie Nuzum Foulkes
*Marguerite Frear
Neva Florence Gates
Carl Franklin Gesell
*Florence Lea Gosselin
Francis Xavier Greenough
Eleonore Marie Groff
Samuel Burton Groom
Ferdinand Herbert Haessler
Alice Kassie Hall
Russell Churchill Hanchett
Wilbur Albert Harlin
Edna Mae Harris
Marion Belle Hartley
*Rose Helen Hauer
Reslo Sherman Havenor
*Frank Dennis Hayes
Edith Butzke Heidner
Adolph Heinz
Herman Alfred Heise
*Randolph Olaf Helland
Manvil Fritjoff Hendrickson
Grace Winifred Hettinger
Beulah Elaine Hill
Edward Lemuel Hindes
George Wheeler Hinman, Jr.
Helen Lucile Holcombe
Evalyn Constance Holman
Lynda Bertha Homberger
Walter Charles Hornaday
*Herbert Frank Horner
*Frederick Franklin Householder
*Alice Hudson
Helen Clarke Humphrey
Anne Phillips Hutchison
Inger Amalia Jacobsen
Sara Holland James
Harold Peter Janisch
Stella Marie Jeffrey
*Aimee Louise Johnson
†Palmer Oliver Johnson
Ella Bessie Jones
John Simon Josiassen
Adolph Henry Kazda
Alvin Herman Kessler
Anna Elizabeth Kieckhefer
Clara Ottilie Kieselbach
Eva Marie Kilmer
Annie Elizabeth King
Esther Josephine King
Alfred Will Kliefoth
Minnie Clara Koehsel
Edwin Philip Kohl
Arthur Nicholas Kuhnen
Ina Gertrude La Combe
Bessie May Lake
*Harold Milton Lampert
*Gladys Wilhelmina Lange
Minnie Johnstone Langwill
*Arthur William Larsen
Veda Belva Larson
*Ruth Madeline Lathrop
Marie Therese Leavens

*Degree conferred since commencement, 1913.
† Degree conferred March 5, 1913.

Soong-Dau Lee
Rose Magdalen Legler
Marian Lewis
Theodore Gorman Lewis
Frances Mary Link
Lydia Emeline Loos
*Leola Marie Lorenz
Edna Katharine Luchsinger
Wylda Jay Lucke
*Edward Joseph Lueckenbach
Mildred Joyce Lund
Faye McBeath
Catherine Helen McGovern
John Gordon McKay
*Harriet Belle McKinley
Thomas Omar McMahon
Donald Groves Magill
Bessie Mahoney
Ethel Amelia Mansfield
Harry Carl Marks
James Gardner Martin
Kenneth Dion Martin
Erna Henrietta Mathys
Mary Ventura Matts
Jessie Menzies
Anna Mercy
Maria Louise Merkelbach
Vera Amalia Milhaupt
*Glenn Elmer Miller
*Mayme Conway Moe
Arthur George Mohaupt
Sidney John Moore
*Inez Elizabeth Morley
Katherine Morrissy
*Louise Morrow
Corinne Charlotte Mueller
Barbara Mullon
Marjory Mullon
Richard Anthony Muttkowski
Della Naber
*Leo Nash
Leonard Nelson
Elizabeth Marguerite Newell
Mary Mohr Nicolls
Sarah Isabel Niles
Ruth Reid Norton
*Arthur Raymond Oates
*Joseph Francis Oesterle
Agnes Elizabeth O'Malley
Minnie Malinda Olds
Burton Wilson Olin
Esther Sarah Osborn
Arthur Cochrane Peabody
Jane Pearce
Edna Crystal Pease
Helene Parkinson Peck
Nellie Ada Pence
Jane Mae Pengelly
Edith Lillian Pennock
Laura Esther Perky
Hazel Victoria Peterson
Helen Therese Peterson
Carl Mathew Petterson
*John J. Pettijohn
Helen Virginia Pfuderer
*Maurice Campbell Pierce
Jessie Post
Charles Healy Powell
*Harriet Prince
*Edith Clara Pryor
Aagot Raaen
*Nathan William Reed
Alice Kaye Reek
Maude Dunlap Reid
Alvin Carl Reis
Beth Anna Reuss
*Edward Daniel Reynolds
Emma Hanks Richardson
Marguerite Bernadine Rickert
Avis Ring
Miriam Josephine Robinson
Norma Roloff
Evelyn Townsend Ross
Charles R. Roter
Alice Dorothy Rudolph
*Kathryn Frances Ryan
Mary Agnes Ryan
Edward Joseph Samp
Eura Christie Sanders
John Henry Savage, Jr.
Carl Schauermann
*Margarete Schenk
*Joseph Scher
Lloyd Marcus Schindler
Erwin Rudolph Schmidt
*Lucile Iva Sell

*Degree conferred since commencement, 1913.

Leila Huntington Seward
Minnie Catherine Sexauer
Cornelius Philip Shea
Edmund Burke Shea
Hazel Lee Sheldon
Henry L. Sherwood
Sister Mary Fidelis, O. S. D.
Sumner Huber Slichter
Harold Elmer Smith
Myrtle Elizabeth Snyder
Merrill Clary Sosman
Helen Baker Spence
Benjamin Mark Squires
Lila Stark
Edwin Blythe Stason
Sigvald Asbjorn Stavrum
Louis George Steck
Arthur Lewis Steen
Walter William Stewart
*Milan Hausch Stocking
Nettie Stokes
Grace Blanche Stone
Leta Grace Stowell
Marion Ruth Strong
Mary Seymour Stryker
Edyth Claire Swarthout
Herbert Ray Sweetman
John Dudley Taylor
Olivia Jane Taylor
*Magdalene Elizabeth Thompson
Myrtle Eleanor Thompson
Charles Weldon Tomlinson
*Frances Iola Trewyn
Mildred Frank Trilling
Robert Dix Tristram
Richard Morton Tunnicliffe
Edward Chauncey Twitchell
Marjorie Olive Vaughn
Grace Margaret Vergeront
*Frederick Rice Wahl
Emmett James Welch Walker
Frances Annis Walker
Roxie Walker
John Wattawa
Mary Amelia Weber
Paul Bion Welch
Chester Caesar Wells
Allan Charles Werner
Carl Friederick Gustav Wernicke, Jr.
Frances Louise Wertz
Caryl Rockwood Williams
Edna Winchester
Ruth Winchester
Edith Agnes Winslow
Emily Bradley Winslow
Elfrieda Hertha Wippermann
Valeska Meta Wippermann
Frances Eleanor Withington
Roger Dod Wolcott
Frank Nourse Youngman
Caroline Julia Youngs
Louis Albert Zollner

Course in Commerce

*Royal Charles Allen
*Clifford Samuel Ashmun
Paul Edwin Baker
*Eugene Albert Barth
Charles Henry Brimmer
William Henry Burhop
Herbert Theodore Burrow
Lewis Gould Castle
Everett Francis Dahm
Carl Edgar Dietze
Raphael Morgan Doyle
Guy Thomson Ellis
Alvin Louis Findeisen
Elmer Clay Herron
Mark Hadley Hoskins
Charles Laselle Jamison
Robert Felix Kahn
Stanley Butcher Kirk
William Edward Kirk
Otto Adolph Knause
Hugo Kuechenmeister
Francis Stewart Lamb
Hal Herman Lang
Dexter Roundy Mapel
Hinman Rayworth Moore
Frank John Novak

*Degree conferred since commencement, 1913.

Doric Chipman Porter
John Charles Pritzlaff
Edward Gerald Reyer
William C. Roberts
Ralph Jay Sheffer
*John Ensign Sheridan
Leo Charles Smith
*Elmer Leroy Wedlock
*Arno Louis Zinke

BACHELOR OF PHILOSOPHY

Velva Myrtle Bradbury
Ray Elwin Brasure
William Daniel Byrns
Ruth Carman
Adrian N. Daane
John L. Dahl
Henry Thomas Emmett
Dora Rose Fox
*Edwin Chauncy Gotham
Vivien Grey Hainer
Louia May Henika
*Henry Gustave Hotz
William Charles Koepke
Martha Corbett Langwill
Katherine Leader
Clara Dora Lebeis
*Daisy May Linson
Eleanor Lloyd
George Michael Murphy
Percival P. Patterson
William Packard Roseman
Harmon Frank Schell
Lynn Ira Schoonover
Helen Louise Scoon
Clara Emma Shadell
Maude Margaret Foster Shafer
Margaret Anne Smeaton
Benjamin William Weenink
Ellen Pauline Wheelock
Reinhard Conrad Winger
Vive Hall Young
Florence Anna Ziegler

BACHELOR OF SCIENCE, MEDICAL SCIENCE COURSE

Damon Alonzo Brown
Carl Freund
Vincent William Koch
Frank Raymond Menne
Harry Bugge Moe
Delbert Harry Nickson
Erling Oscar Ravn
Walter Herman Rietz
George Hiram Robbins
Milton Edward Rose
Emil Albert Ruka
Allen Walters Sivyer
Ernest Leonard Schroeder
Richard Eugene Werlich

BACHELOR OF SCIENCE, CHEMISTRY COURSE

Nevius Van Dyke Ballance
*Van Lorens Bohnson
*Raymond Denny Cooke
William Howard Freiburger
Harry Louis Hollmeyer
Angus James Johnston
Walter Henry Juve
Alvin Romaine Lamb
Raymond Dyer McGrath
†Donald Harrison Barnett Riley
James Thomas Roach
*Albert Adolph Sliwinski
*Samuel Spero
Clarke Kryn Wolfert
Andrew Albert Wollin

*Degree conferred since commencement, 1913.
†Degree conferred April 16, 1913.

BACHELOR OF SCIENCE, PHARMACY COURSE

Leon Henry Dewey
James Hanson
Henry August Langenhan
Walter McCrory

GRADUATE IN PHARMACY

Albert Gustave Abel
Francis Albert Federer
Leroy George Hoffman
Alvin August Mahre
William Rabak
Ronald Sheridan Reardon
Stella Linita Sinclair

COLLEGE OF ENGINEERING

BACHELOR OF SCIENCE

Civil Engineering Course

Harold Leigh Algeo
Gordon Alcott Beebe
Roger Bross Buettell
Walter Glynn Butler
Ralph Hughes Cahill
James Francis Case
Adolph Eugene Christensen
Lloyd Edward Davis
Robert Stebbins Drew
Paul Wilterding Dunnewald
*Herbert Charles Fisher
Franklin Stanley Halladay
William Thompson Hopkins
Robert Davis Hughes
Elmer Acred Jacob
Benjamin Harrison Lampert
Malcolm Fizer McFarland
Fabian Clifton McIntosh
Calvin James McLean
Richard Hans Merkel
Ernest Benjamin Nelson
Walter Frederick Nickel
Eugene Carter Noyes
*William Herman Petersen (Degree conferred as of class 1889)
Samuel Harold Probert
Max Frederic Rather
*John Murray Ray
Albert Henry Simon
Maurice Charles Sjoblom
Robert Matthew Smith
Charles Paul Stivers, Jr.
Myron Anthony Tack
Henry Traxler
Courtland DeLano Vaughn
Glenn Fish Vivian
Edward Nelson Whitney
Arthur Harding Withington
Samuel Driscoll Wonders
Harold Paul Wood

Mechanical Engineering Course

Roscoe Frederick Ballard
Milton Evans Chandler
Richard Adkins Corbett
Melvin James Evans
Erwin Miles Fraser
Marshall Woods George
John William Griswold
Harold Vincent Harvey
Burton Hynard Hawkins
Guy Edwin Hawthorne

*Degree conferred since commencement, 1913.

*Clarence Eugene Head
Frederic William Horn
Philip Burch Korst
Edward Phelps Langworthy
Frank William Lorig
Wilbur Hugh McEachran
Everette Kellogg Morgan
Albert George Peter
*Henry Theodore Sandberg
Walter Hubert Schleck
Erwin John Stephany
Victor Henry Volquarts
George Brinton Welser, Jr.

Electrical Engineering Course

Earl Ando Anderson
Raymond Charles Borchert
Adolph David Bullerjahn
Vernon Roy Buxton
Ramsay Prescott Decker
Roy Lyon Dodd
Carl Raymond Findeisen
Stanley Herbert Harrison
Elbert Blaine Heimbach
Alvin Dewayne Keene
Roy Avery Keller
Alfred Carl Kelm
George Roland Kuhns
John Robert Manegold
Jesse Eugene Miller
Ralph Edmund Moody
Floyd McKee Rosenkrans
*Sawland J. Shu
Robert Lincoln Stiles
Lester Leroy Stoddard
Hugo Herbert Stoelting
Jay Douglas Walter
*Carl Albert Wendt

Chemical Engineering Course

Walter Leslie Bainbridge
Dean Brown Becker
William Desmond Bliss
Arthur Henry Frost, Jr.
Edgar Dow Gilman
Shirley Alton McDougall
Andrew George Schneider
William Harrison Steinberg

Mining Engineering Course

Charles Robert Alaniva
Harold Borchsenius
Percy Cosson Brintnall
Douglas Calvert Corner
Clinton John Hansen
Frank Henry Madson
Bryan Seaborne Reid
Rudolph John Stengl

GRADUATES OF ADVANCED ENGINEERING COURSES

CIVIL ENGINEER

Harry Claude Lynch
Andrew Seifert
Harry Nicholl Starkey
†Ivan Frederick Waterman (Degree conferred as of the class of 1912)

*Degree conferred since commencement, 1913.
†Degree conferred March, 5, 1913.

ELECTRICAL ENGINEER

Richard Boissard
Frank Wickizer Johns
Robert Hiram Johnson
John Kingsley Livingston

CHEMICAL ENGINEER

Ming-ho Li

MECHANICAL ENGINEER

William Kountz Fitch
Edmond Stephen Gillette
Stephen Strong Gregory, Jr.

COLLEGE OF AGRICULTURE

BACHELOR OF SCIENCE (AGRICULTURE)

Marcus Amodt
Richard Ambrose Andree
Robert Dixson Baird
William Lockhardt Baird
Raymond Baker
Roy Thomas Barker
Chester Arthur Barrand
James Grey Beattie
John William Brann
Ralph Vernon Brown
John Hunter Cairns
*Henry Dahl
Harry Dillon
Walter Albert Dopke
Charles Frank Drechsler
Jesse Irving Etheridge
Albert George Fuchs
John Jepson Garland
Sidney Gay
Bueford Monroe Gile
Oscar Gunderson
*Wallace Harvey Gustafson
Eugene William Hall
Claude Sprague Healey
Francis Edward Huser
*Allen Johnson
Robert Austin Lamson
Isidore Levin
Joseph Benjamin Loesch
*Henry Lunz
Charles Fremont McConnell
Nathan Margoles
James Slayden Maverick
Walter Ransom Mawhorter
*Werner Eugene Meyer
Allen Kenneth Murray
Oran Milton Nelson
Raymond Francis Nelson
Antranig Avedis Nigoghossian
Herman John Ninman
Leslie Latham Oldham
Anton Edward Onsrud
John Jacob Oosterhuis
Howard Perry Opie
George Albert Page
Barendra Kumar Palit
Earl Arthur Polley
Clinton Blaine Post
George Frederick Potter
William Dudley Pratt, Jr.
Herman Martin Root
Guy Arland Russell
Anton Wencelaus Schmutzer
Henry William Schneck
Eugene Schultz Schultz
Raymond Herman Schuster

*Degree conferred since commencement, 1913.

Tsic Yee Tang
Carl Thompson
Alan James Turnbull
John Crowell Van Riper, Jr.
John Martin Walz, Jr.
Hjalmar Oliver Watrud
*Albion Scotson Webbe
George Simon Wehrwein
Mina Augusta Willis
Koksan Joeyao Woo
Cecil Yampolsky
Anton John Zahorick
Arthur George Zander

BACHELOR OF SCIENCE (HOME ECONOMIC COURSE)

Elisabeth Louise Amery
Gladys Alee Branegan
Theodora Briggs
Norma Jessie Davis
Helen Josephine Dodge
Eleanor Marie Enright
Anna Rhea Fleming
Evangeline Fryette
*Irma Charlotte Gautschi
Hazel Marie Gray
Melva Delia Harker
Evelyn Harriett Jensen
Hazel Manning
Mary Ennever Pease
Lucile Price Rayne
Josephine Reese
Mabelle Harriet Rogers
Elsie Runge
Florence Nichols Scofield
Saidee Ethel Stark
Mabel Jessie Stegner

GRADUATE IN AGRICULTURE

Charles Lesslie Adams
Murray Reed Benedict
Gilson John Brumm
Mark George Cantrell
*Ellen Isabel Cavanagh
Orlin Perry Craig
Donald Ongley Daube
David Davidson
Glen Albyn Esh
Rexford Hawley
Arthur Louis Ingebritson
Harlan Day Letts
Fred Henry Loye
Frank Edward Mussehl
Louis Herbert Reichel
Arthur Louie Schacht
Walter Frederick Schwaab
Frank Austin Sturtevant
Scott Eddy Warren
Ellis Wilbur Whiting
John David Yorgey
Roy D. Young

LAW SCHOOL

BACHELOR OF LAWS

†John Sidney Baker
Samuel Lyman Barber, B. A.
Stephen Austin Barrett
†John Andrew Cadigan
Emil Charles Cady
*David Laurence Carlson, B. A.
Laurence Smith Coe, B. A.
*Timothy Theodore Cronin, Ph. B.
Clarence John Cudahy, B. A.
Arthur Brittan Doe, B. A.
Norman Allan English
Howard Tallmadge Foulkes, B. A.
Edward John Gehl
*Elmer Stanley Geraldson

*Degree conferred since commencement, 1913.
†Degree conferred March 5, 1913.

Roman August Heilman, B. A.
Adolph Heinz
*Easton Johnson
*Edward Elsworth Johnson
Quincy Journey Jones, B. A.
Carl Henry Juergens, B. A.
Willard John Laney
LeRoy Blood Lorenz
Charles William Louchery, B. A.
James John McDonald, B. A.
†Howard Francis Ohm
Jefferson Allan Simpson, B. A.
*Glen Edward Smith, B. S., E. E.
Irving Winfred Smith
William Henry Spohn, B. A.
Oliver Roman Weinandy, Ph. B.
Harold McLean Wilkie
†George Edmund Worthington, B. A.
George Frank Yantis

SCHOOL OF MUSIC

GRADUATE IN MUSIC

Florence Fidelia Quayle

GRADUATES FROM COURSE FOR SUPERVISORS OF MUSIC

Hazel Kathryn Brennan
Agnes Mary Burton
Marie Louise Merkelbach
Esther Helene Simpson
Esther Marie Stauffacher
Ruth Zell Wheeler

GRADUATE SCHOOL

MASTER OF ARTS

Florence Edith Baber, B. A. (Carroll College) in Latin.
*Charles C. Becker, B. A. (Albion College, Michigan) in Agricultural Economics.
Katharine Fisher Belcher, B. A. (Vassar College) in American History.
William Carl Beyer, B. A. (Grinnell College) in Political Science.
Anna Livingston Burton, B. S. (University of Wisconsin) in Botany.
*Arthur Wallace Calhoun, B. A. (University of Pittsburgh) in Political Economy.
John Adam Campbell, B. A. (Franklin-Marshall College) in American History.
Homer McClelland Carter, B. A. (Beloit College) in Medicine.
Helen McNaughton Chafin, B. A. (Carroll College) in American History.
James E. Davis, B. A. (University of Wisconsin) in Mathematics.
Alletta Friscone Dean, Ph. M. (University of Wisconsin) in Botany.

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†Degree conferred March 5, 1913.
*Degree conferred since commencement, 1913.

†Lester Otis De Camp, Ph. B. (Albion College) in Education.
*Lois Detweiler, B. A. (William and Vashte College) in German.
Esther Margaret Dixon, B. A. (University of Maine) in Romance Languages.
*Raymond Ephraim Dixon, B. A. (University of Wisconsin) in English.
William T. Donaldson, Ph. B. (Alfred University) in Political Science.
Maynard Downes, B. L. (West Virginia Wesleyan University) in American History.
*William McGlashan Duffus, B. A. (Leland Stanford, Jr., University) in Political Economy.
Robert Hiram Dunn, B. A. (University of Wisconsin) in European History.
Martha Letitia Edwards, in American History.
Merwin Guy Edwards, B. A. (University of Wisconsin) in Geology.
William Henri Eller, Ph. B. (University of Wisconsin) in German.
Elizabeth Frederica Fox, B. A. (St. Clara College) in Chemistry.
Ruth Mary Fox, B. A. (St. Clara College) in English.
*Thornton Carle Fry, B. A. (Findlay College) in Mathematics.
Katharine Jeanne Gallagher, B. A. (Vassar College) in American History.
*Richard Augustus Hearon, B. A. (George Peabody College) in American History.
Dennis Robert Hoagland, B. A. (Leland Stanford, Jr., University) in Agricultural Chemistry.
Arthur Thomas W. Holmes, B. A. (University of Wisconsin) in Political Economy.
Mildred Bell Hosler, B. A. (Milwaukee Downer College) in Botany.
Agnes Emmons Howe, B. A. (Leland Stanford, Jr., University) in Political Economy.
*Joseph Bradley Hubbard, B. A. (University of Wisconsin) in Political Economy.
*Victoria James, B. S. (University of Wisconsin) in Latin.
John Theodore Johnson, B. A. (University of Indiana) in Philosophy.
Laura Butler Johnson, B. A. (University of Wisconsin) in Romance Languages.
*Edward Huntling Jones, B. A. (Lafayette College) in Zoology.
Ralph Keffer, B. A. (Miami University) in Mathematics.
*George Valentine Kendall, B. A. (Brown University) in History.
Blenda Louise Kjellgren, B. A. (Lake Forest College), in Zoology.
Ellis Llewellyn Krause, B. A. (Ripon College), in Chemistry.
*Park Gresh Lantz, B. A. (Indiana University), in American History.
*Margaret Lawrence, M. A. (Tabor College), in Mathematics.
Eugene Marie Lebert, B. L. (Universite' de Rennes), in Romance Languages.

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*Degree conferred since commencement, 1913.
† Degree conferred March 5, 1913.

*Barnem Libby, B. S. (Princeton University), in Mathematics.
*Lilly Elfriede Lorenzen, (Graduate of Schleswig Teachers Seminary), in German.
†George Frederic Lussky, B. A. (University of Chicago), in German.
*Jennie Willing McMullin, Ph. B. (University of Chicago), in History.
Donald Le Crone McMurray, B. A. (Beloit College), in American History.
Esther Uhl McNitt, B. A. (Vassar College), in American History.
Louis Dee Mallonee, B. A. (Simpson College), in Political Science.
Elzo Roy Manley, B. A. (Lawrence College), in Chemistry.
*Dorothea Elizabeth Mason, B. A. (University of Minnesota), in German.
Alice Pauline Merriman, B. A. (Swarthmore College), in German.
Waldo F. Mitchell, B. A. (Indiana State Normal School), in American History.
*Edna Pierce Murphy, B. A. (Gustavus Adolphus, St. Peters, Minn.), in Latin.
Elizabeth Calquett Newell, B. A. (University of Missouri), in German.
*Carl E. Pray, B. L. (Olivet College), in History.
Hilda Marie Raetzmann, B. A. (University of Wisconsin), in German.
Louis Isidor Rehfuss, B. A. (University of Wisconsin), in Geology.
Dorothy Rogers, B. A. (University of Wisconsin), in Bacteriology.
Edith Lou Ruddock, B. L. (Carleton College), in German.
Albert Ferdinand Schersten, B. A. (Augustana College), in English.
Otto Charles von Schlichten, B. A. (University of Cincinnati), in Geology.
Chloe Siner, B. A. (University of Indiana), in English.
Sister Mariola, O. S. D., B. A. (Catholic University), in Mathematics.
Mark Anson Smith, B. A. (Dartmouth College), in Political Economy.
Johanna Grace Soland, B. A. (University of Wisconsin), in English.
Laura Sophia Stark, B. A. (University of Wisconsin), in German.
Herbert Arthur Studebaker, B. A. (Manchester University), in English.
Carl Tyssen, B. A. (Luther College), in European History.
*Sherman Ray Wilson, B. A. (University of Nebraska), in Chemistry.

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*Degree conferred since commencement, 1913.
†Degree conferred April 16, 1913.

MASTER OF SCIENCE

*Ernest Baden Benger, B. S. (Grinnell College), in Chemistry.
Theodore Ernest Beyer, B. A. (Yankton College), in Medicine.
Lawrence Eley Blanchard, B. A. (Trinity College), in Agricultural Economics.
Gilbert Elliott Brereton, B. S. (University of Wisconsin), in Bacteriology.
†Luther Parris Byars, B. S. (Clemson College), in Plant Pathology.
*Harold Edward Dibble, B. S. (Cornell University), in Experimental Breeding.
Carl Diedrich Geidel, B. S. (University of Wisconsin), in Chemistry.
*Alfred Halley Gilbert, B. S. (University of Vermont), in Plant Pathology.
Frank Gray, B. S. (Purdue University), in Physics.
Heman Lauritz Ibsen, B. S. (University of Wisconsin), in Experimental Breeding.
‡Ivan Claude Jagger, B. S. (Cornell University), in Plant Pathology.
Forrest E. Kempton, B. S. (Earlham College), in Botany.
Howard Gove MacMillan, Ph. B. (Brown University), in Plant Pathology.
Samuel Weis Mendum, B. S. (Boston University), in Agricultural Economics.
William David Sansum, B. S. (University of Wisconsin), in Medicine.
Erwin Rudolph Stoekle, B. S. (Northwestern University), in Physics.
*Wallace H. Strowd, B. A. (University of North Carolina), in Agricultural Chemistry.
William Septimus Taylor, B. S. A. (Kentucky State University), in Agronomy.
John B. Thompson, B. S. (St. Olaf's College), in Chemistry,
Earl Archibald White, B. S. (University of Illinois), in Agricultural Engineering.
Frank M. White, B. S. (University of Illinois), in Soils.
Raymond Boorman Wilcox, B. S. (University of Wisconsin), Plant Pathology.

CIVIL ENGINEER

Clifford Allen Betts, Ph. B. (Sheffield Scientific School).
Thesis: A proposed addition to the water purification plant of the city of South Norwalk, Connecticut.

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*Degree conferred since commencement, 1913.
†Degree conferred March 5, 1913.
‡Degree conferred April 16, 1913.

Charles Sumner Duke, B. A. (Harvard University).
Thesis: The marine section of the Southwest Land and Lake Tunnel of Chicago.

Morris Irwin Evinger, B. C. E. (Iowa State College).
Thesis: The improvement and extension of the water supply and distribution system of the city of Knoxville, Iowa.

Lewis Merrick Hammond, B. S. (University of Wisconsin).
Thesis: A general description of the construction of the various features of the storage works of the Strawberry Valley project with special reference to the Strawberry Dam United States Reclamation Service.

August Herman Leschke, B. S. (Trinity College).
Thesis: A comparative study of time schedules of tonnage trains on the Milwaukee, Sparta & North Western Railway.

Arthur Louis Luedke, B. S. (University of Wisconsin).
Thesis: The adaptability of the concrete road to Wisconsin conditions.

William Jacy Titus, B. A. (Indiana University).
Thesis: Analysis of stresses in the Luten reinforced concrete arch bridge at station 215-2-17, Kansas City and St. Joseph Railroad.

Kenneth Van Auken, B. S. (University of Wisconsin).
Thesis: American concrete arches.

Clement Tehle Wiskocil B. S. (University of Wisconsin).
Thesis: Flow of water over a 12-inch end contracted submerged weir as determined by special piezometer measurements.

Albert Mathias Wolf, B. S. (University of Wisconsin).
Thesis: American concrete arches.

MECHANICAL ENGINEER

Benjamin George Elliott, M. S. (Rose Polytechnic Institute).

Edward Louis Kastler, B. S. (University of Wisconsin).
Thesis: Proposed standardization of calculations for small gasoline engine design.

Will David Moyer, B. S. (University of Wisconsin).
Thesis: Efficiency tests on line shaft bearings.

ELECTRICAL ENGINEER

*Walker Anderson, Jr., B. S. (Alabama Polytechnic Institute).
Thesis: An investigation of a proposed method for obtaining high frequency current oscillations from continuous current sources.

Jesse La Mar Brenneman, B. S. (University of Chicago).
Thesis: Potential distribution of high tension insulators.

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*Degree conferred since commencement, 1913.

Harold Marion Crothers, B. S. (South Dakota State College).
Thesis: Potential distribution of high tension insulators.
Lester Maxwell Moss, B. S. (University of Wisconsin).
Thesis: The commercial photometry of incandescent lamps.

CHEMICAL ENGINEER

Emil Lee Leasman, B. S. (University of Wisconsin).
Thesis: A study of the variables entering into the production of malleable iron.
Linwood Thomas Richardson, B. S. (University of Wisconsin).
Thesis: Notes on forging and other properties of alloys of electrolytic iron and other elements.
Oliver Wendell Storey, B. S. (University of Wisconsin).
Thesis: A microscopic study of electrolytic iron.

DOCTOR OF PHILOSOPHY

Albert William Aron, M. A. (University of Nebraska), in German, English.
Thesis: Das prädikative Participium Praesentis in Mittelhochdeutschen und Frühnenhohdeutschen.
*John Merrill Bridgham, M. A. (Dartmouth College), in Latin, Greek.
Thesis: The Influence of Homer upon the Diction of Virgil's Aeneid.
*James Llewellyn Cattell, B. A. (Bucknell College), in French, Spanish, Comparative Literature.
Thesis: "Le Menage a hois" in French dramatic Literature.
William Adelbert Cook, M. A. (University of Illinois), in Education, Sociology.
Thesis: Studies in the psychology and pedagogy of spelling.
*Louis Peter De Vries, M. A. (University of Wisconsin), in French, Spanish, Latin.
Thesis: Realism in the Modern Drama and Novel (a comparison).
*Ezekiel Henry Downey, M. A. (University of Iowa), in Political Economy, American History.
Thesis: A history of work accident indemnity in Iowa.
Ulysses Grant Dubach, M. A. (Harvard University), in Political Science, American History, Political Economy.
Thesis: State administration of health.
*Howard Austin Edson, M. S. (University of Vermont), in Plant Pathology, Botany, Chemistry.
Thesis: Damping off and root decay of sugar beets.
*Grace Gertrude Goodrich, M. A. (University of Wisconsin), in Latin, Greek.
Thesis: Dionysus in the Satyr Drama.

*Degree conferred since commencement, 1913.

†Willford Isbell King, M, A (University of Wisconsin), in Political Economy, Political Science, Sociology.
Thesis: The valuation of urban realty for purposes of taxation.

*Orren Lloyd-Jones, M. S. (University of Wisconsin), in Experimental Breeding, Zoology, Agricultural Chemistry.
Thesis: An analytical study of color in pigeons in relation to inheritance.

William Harold Peterson, M. A. (Columbia University), in Agricultural Chemistry, Agricultural Bacteriology, Chemistry.
Thesis: Forms of sulphur in plants.

Roy Lee Primm, M. A. (University of Missouri), in Agricultural Bacteriology, Plant Chemistry.
Thesis: Some phenomena associated with cellulose fermentation.

Charles Maltador Purin, M. A. (University of Wisconsin), in German, German Philology, French.
Thesis: Tolstoi in Deutschland.

Jonathan French Scott, M. A. (Rutgers College), in European History, American History, Education.
Thesis: Some phases of the history of the English apprenticeship system.

Lucretia Van Tuyl Simmons, M. A. (Pennsylvania State College), in German Literature, French Literature, Germanic Philology.
Thesis: Goethe's Lyric in English translations.

*Gilbert Morgan Smith, B. S. (Beloit College), in Botany, Plant Pathology.
Thesis: Organization of the colony in certain form-celled coenobic algae.

Nellie Antoinette Wakeman, M. S. (University of Wisconsin), in Plant Chemistry, Botany, Chemistry.
Thesis: Plant pigments other than chlorophyll.

Jerry Edward Wodsedalek, Ph. M. (University of Wisconsin), in Zoology, Entomology, Experimental Breeding.
Thesis: Natural history and behavior of certain ephemeridae.

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*Degree conferred since commencement, 1913.
†Degree conferred April 16, 1913.

HONORARY DEGREES

DOCTOR OF LETTERS

Eugen Kühnemann, Professor of Philosophy, University of Breslau: Carl Schurz, Memorial Professor, 1912–13.

DOCTOR OF SCIENCE

Rupert Blue, Surgeon General, Public Health and Marine Hospital Service, Washington, D. C.

Florian Cajori, Dean of the School of Science and Professor of Mathematics, Colorado College.

CIVIL ENGINEER

John Watson Alvord, Consulting Hydraulic and Sanitary Engineer.

HONORS IN SPECIAL STUDIES

COLLEGE OF LETTERS AND SCIENCE

General College Honors

Charles Weldon Tomlinson, in Geology and Astronomy.
Thesis: A study of the paleozoic stratigraphy of the State of Wyoming.

Honors for Theses

Adolph Rudolph Braun, in German.
Thesis: Charakter-, janlungs-, und schicksals-parallelismus in Gustav Freytag's "Ahnen."

Alfred Joseph Buscheck, in Political Science.
Thesis: The work of public service commissions.

Henry Lewis Chesick, in Political Economy.
Thesis: The first American attempt at a permanent tariff commission.

Lydia Irma Dallwig, in German.
Thesis: Erlebnis und weltanschauung in den dichtungen, Friedrich Hoelderlins.

Margaret Olivia Eberle, in History.
Thesis: Independent movements in American politics, 1872-1900.

Harriette Hilton Fish, in Political Economy.
Thesis: Police power in its effect on legislation concerning adult males.

George Wheeler Hinman, Jr., in History.
Thesis: Massachusetts railway legislation.
Charles Lasalle Jamison, in Commerce.
Thesis: Price fluctuation of Pennsylvania Railroad securities in the New York Stock Market.
Clara Dora Lebeis, in Education.
Thesis: A study of the mental ability of the girls of the State Industrial School.
George Michael Murphy, in Education.
Thesis: A study of the Binet-Simon tests for measuring the intelligence of children.
Burton Wilson Olin, in Political Economy.
Thesis: Large and small-scale production in agriculture and its relation to socialism.
Nellie Ada Pence, in Latin.
Thesis: Roman character as shown in Virgil's Aeneid.
Carl Schauerman, in German.
Thesis: Zur Dramentechnik Schnitzlers.
Leila Huntington Seward, in English.
Thesis: The industrial revolution and the English novel of the nineteenth century.
Frances Eleanor Withington, in English.
Thesis: The reception of Dickens' novels in America as shown in American periodicals.

LAW SCHOOL

Arthur Brittan Doe, B. A.
Thesis: Thesis course in Jurisprudence.
Howard Tallmadge Foulkes, B. A.
Thesis: Seminar in Private Law.
William Henry Spohn, B. A.
Thesis: Thesis course in Jurisprudence.
Harold McLean Wilkie,
Thesis: Thesis course in Jurisprudence.

SUMMARY OF GRADUATES

		1913
Number of first degrees granted, 1854-1913.....	10,051	649
Present Courses:		
Courses leading to the degree of Bachelor of Arts, 1904-1913.....	2,598	351
(Included in the above is the Course in Commerce, 1904-1913, 276; 1913, 35.)		
Course for Normal School Graduates, Ph. B., 1898-1913	413	32
Chemistry Course, B. S., 1909-1913.....	38	15
Medical Science Course, B. S., 1909-1913....	60	14
Pharmacy Course, B. S., 1895-1913.....	45	4
Pharmacy Course, Ph. G., 1884-1913.....	307	7
School of Music, M. G., 1898-1913.....	127	1
Course for Supervisors of Music, 1910-1913	18*	6*
Course in Agriculture, B. S., 1878-1913....	306	69
Home Economics Course, B. S., 1909-1913..	44	21
Course in Agriculture, (Middle Course), Ag. G., 1910-1913.....	53*	22*
Law Course, LL. B., 1869-1913.....	1,931	33
Chemical Engineering Course, B. S., 1903-1913	53	8
Civil Engineering Course, B. S., 1873-1913	548	40
Electrical Engineering Course, B. S., 1892-1913	477	23
Mechanical Engineering Course, B. S., 1876-1913	365	23
Mining Engineering Course, B. S., 1910-1913	16	8
Courses discontinued:		
Ancient Classical Course, B. A., 1854-1903	470	
Modern Classical Course, B. L., 1876-1903..	548	
English Course, B. L., 1887-1903.....	458	
Civic Historical Course, B. L., 1893-1903...	383	
General Science Course, B. S., 1886-1903...	722	
School of Commerce (B. L., 8; B. S., 1) 1902-1903	9	
Normal Course, 1865-1868.....	25	
Metallurgical Engineering Course, B. M. E., 1876-1896	16	
General Engineering Course, B. S., 1901-1910	92	

*Not included in totals.

Higher Degrees on Examination, 1875-1913....	1,345	144
Master, 1879-1913	890	93
Engineer, 1879-1913.....	221	32
(Included in the above is the Advanced Course in Engineering, 1910-1913, 36; 1913, 12.)		
Doctor of Public Health, 1813.....	1	0
Doctor of Philosophy, 1892-1913.....	233	19

SUMMARY OF DEGREES

Number of first degrees granted, 1854-1913.....		10,051
Bachelor of Arts, 1854-1913.....	3,068	
Bachelor of Philosophy, 1898-1913.....	413	
Bachelor of Letters, 1876-1913.....	1,397	
Bachelor of Science, 1873-1913.....	2,767	
Bachelor of Metallurgical Engineering, 1876-1896	16	
Bachelor of Laws, 1869-1913.....	1,931	
Graduate in Music, 1898-1913.....	127	
Graduate in Pharmacy, 1884-1913.....	307	
Graduate in Agriculture (Middle Course), 1910-1913	53*	
Normal Course, 1865-1868.....	25	
Course for Supervisors of Music, 1910-1913	18*	
Higher degrees on Examination, 1875-1913....		1,345
Master, 1879-1913	890	
Engineer, 1879-1913	221	
Doctor of Public Health, 1913.....	1	
Doctor of Philosophy, 1892-1913.....	233	
Grand total of first and higher degrees granted, 1854-1913		11,396

*Not included in totals.

STUDENTS

GRADUATES

FELLOWS AND SCHOLARS

Betts, Clifford Allen — *Norwalk, Conn.*
C. E., University of Wisconsin, Scholar in Hydraulic Engineering.

Blankenagel, John Carl — *Milwaukee*
B. A., University of Wisconsin, Fellow in German.

Bond, Jesse Hickman — *Halsey, Oregon*
M. A., University of Oregon, Fellow in Sociology.

Byars, Luther Parris — *Marion, S. C.*
M. S., University of Wisconsin, Scholar in Plant Pathology.

Childs, Harold Farnsworth — *Columbus, Ohio*
M. A., Ohio State University, Mary M. Adams Fellow in English.

Clapp, Frank Leslie — *Madison*
M. A., University of Illinois, Fellow in Education.

Clark, Herman Aldrich — *Madison*
M. A., University of Michigan, Charles Kendall Adams Fellow in Greek.

Cooke, Raymond Denny — *Eau Claire*
B. S., University of Wisconsin, Scholar in Chemistry.

Curtis, Harry Alfred — *Madison*
M. A., University of Colorado, Fellow in Chemistry.

Daland, John Norton — *Milton*
B. A., Milton College, Milton College Scholar (Latin).

Drew, Robert Stebbins — *Chicago, Ill.*
B. S., University of Wisconsin, Scholar in Civil Engineering.

Ellman, Frances Catherine — *Madison*
B. A., University of Wisconsin, Scholar in Romance Languages.

Farnham, Willard Edward — *Cedaridge, Colo.*
B. A., University of Wisconsin, Scholar in English.

Feiring, Julius Ferdinand — *Madison*
B. A., Carroll College, Carroll College Scholar (History).

Flower, Marie Rosamond — *Arlington, Ia.*
B. A., University of Wisconsin, Teaching Fellow in English.

Gallagher, Katharine Jeanne *Hartington, Nebr.*
M. A., University of Wisconsin, Fellow in American History.
Gilman, Edgar Dow *Madison*
B. S., University of Wisconsin, Fellow in Civil Engineering.
Glasscock, Hardin Roads *Muncie, Ind.*
B. A., Ohio Wesleyan University, Fellow in Zoology.
Haessler, Clara Luise *Milwaukee*
B. A., University of Wisconsin. Scholar in German.
Harriman, Raymond Davis *Grinnell, Ia.*
B. A., Grinnell College, Fellow in Latin.
Heeren, Harry Ewald *Madison*
M. A., University of Illinois, Fellow in Political Science
Henderson, Martin Perry *Madison*
B. A., University of Utah, Fellow in Plant Pathology.
Howard, Delton Thomas *Appleton*
M. A., University of Illinois, Fellow in Philosophy.
Jakobsen, Arnt Ludwig *Steukjaer, Norway*
Graduate of Technical School of Norway,
Scholar in Civil Engineering.
Keene, Mary Lucille *Columbia, Mo.*
M. A., University of Missouri, Fellow in Botany.
Keffer, Ralph *Cottage Grove, Ind.*
M. A., University of Wisconsin, Fellow in Mathematics.
Kittleson, John Astal *Madison*
B. S., Beloit College, Beloit College Scholar (Medicine).
Langendorf, Elizabeth S. Church, *Camden, N. J.*
B. A., Mt. Holyoke College, Fellow in Romance Languages.
MacKinney, Loren Carey, *Appleton*
B. A., Lawrence College, Lawrence College Scholar (History).
McMillan, Luther Burchard *Anchor, Texas*
Ch. E., Agricultural and Mechanical College of Texas,
Fellow in Mechanical Engineering.
Macklin, Theodore *Madison*
B. S., Iowa State College, Scholar in Agriculture.
Martin, Albert Pray *Pawtucket, R. I.*
B. A., Brown University, Henry Gund Scholar in German.
Maxey, Chester Collins *Ellensburg, Wash.*
B. A., Whitman College, Scholar in Political Science.
Nesbitt, Charles Rudolph *Colony, Kansas.*
M. A., Yale University, Fellow in Political Economy.
Newell, Jane Isabel *Philadelphia, Pa.*
M. A., University of Wisconsin,
Scholar in Political Economy.
Oliver, John William *Madison*
M. A., University of Missouri, Scholar in American History.
Pence, Nellie Ada *Madison*
B. A., University of Wisconsin, Teaching Fellow in Latin.
Peterson, Helen Therese *Soldiers Grove*
B. A., University of Wisconsin, Teaching Fellow in History.
Ryan, Mary Agnes *Sun Prairie*
B. A., University of Wisconsin, Teaching Fellow in History.

Sabin, Ethel Ernestine *Node Ranch, Wy.*
B. A., University of Wisconsin, Scholar in Philosophy.
Shero, Lucius Rogers *Racine*
M. A., University of Wisconsin, Fellow in Greek.
Slichter, Sumner Huber *Madison*
B. A., University of Wisconsin, Scholar in Political Economy.
Snow, Chester *Madison*
B. A., Harvard University. Fellow in Physics.
Stecker, Margaret Loomis, *Mount Vernon, N. Y.*
B. A., Cornell University, Fellow in Political Economy.
Tang, Tsic Yee *Canton, China*
B. S., University of Wisconsin, Fellow in Soils.
Taylor, William Halvor, *Two Rivers*
B. A., Ripon College, Ripon College Scholar (Physics).
Tomlinson, Charles Weldon, *Madison*
B. A., University of Wisconsin, Fellow in Geology.
Webster, Homer Jeptha *Madison*
Ph. M., University of Chicago, Honorary Fellow in History.
White, Gertrude Marean t c *Burdett, N. Y.*
B. A., Milwaukee-Downer College,
Milwaukee-Downer Scholar (Zoology)
Williams, Caryl Rockwood *Viroqua*
B. A., University of Wisconsin, Teaching Fellow in Latin.
Withington, Eleanor Frances *Baraboo*
B. A., University of Wisconsin, Teaching Fellow in English.

OTHER GRADUATES

Aikens, Esther Lillian *Franklin, Ind.*
B A., Franklin College, Journalism.
Albright, Victor Emanuel *Madison*
Ph. D., Columbia University, Anatomy.
Allyn, Josephine, *Madison*
B. A., University of Wisconsin, English.
Anderson, Anna Marie *Muncie, Ind.*
B. A., University of Wisconsin, Education.
Anderson, Charles Andrew *Charlotte Court House, Va.*
B. A., Hampden Sidney College, Agriculture.
Anderson, Stewart Wise *Portsmouth, Va.*
B. S., Virginia Military Institute, Physics.
Andree, Richard Ambrose *Milwaukee*
B. S., University of Wisconsin, Mathematics.
Arneson, Ben Albert *Madison*
B. A., University of Wisconsin, Political Science.
Ash, Isaac Emery *Madison*
M. A., University of Wisconsin, Education.
Bailey, Grace Ethel *Madison*
B. L., University of Wisconsin, History.
Bailey, Ruth *Jacksonville, Ill.*
B. A., University of Illinois, History.
Baker, Ross Allen *Madison*

M. A., De Pauw University, Chemistry.
Barber, Gertrude Mary *Black Earth*
B. L., Milwaukee-Downer College, English.
Barclay, Arthur Jackson *Madison*
B. S., University of Wisconsin, Civil Engineering.
Bartholomew, Elbert T. *Madison*
B. A., Kansas State Normal, Botany.
Bauman, Walter John *Monroe*
B. A., University of Wisconsin, Political Economy.
Beach, Sarah Morehouse, *Bridegport, Conn.*
B. A., Mt. Holyoke College, German.
Bean, Ernest F. *Madison*
M. A., University of Wisconsin, Geology.
Bear, Firman Edward *Madison*
M. S., Ohio State University, Agricultural Bacteriology.
Beecher, Benjamin Sanford, *Madison*
M. A., University of Wisconsin, Political Economy.
Bennett, James Percy *Madison*
M. A., University of Missouri, Botany.
Bennett, Nellie Faye *Uhrichsville, O.*
Ph. B., Denison University, Education.
Benson, James Willie Lee *Mobile, Ala.*
B. S., Alabama Polytechnic Institute, Mechanical Engineering.
Berggren, Axel E. *Madison*
B. S., Iowa State College, Mechanical Engineering.
Berkemeier, Mary Lena *Poughkeepsie, N. Y.*
B. A., Vassar College, History.
Best, Lilla Thurber, *Madison*
B. A., University of Michigan, Home Economics.
Bewick, Thomas Lyman *Madison*
Ph. B., University of Wisconsin, Agronomy.
Bird, Eugene Calvin, Madison
B. A., Oberlin College, Animal Husbandry.
Birge, Julius Stanley *Madison*
M. A., Colorado College, Economic Entomology.
Black, Paul Walton *Madison*
M. A., University of Iowa, Sociology.
Black, Samuel Bruce *Madison*
B. A., University of Wisconsin, Political Economy.
Blackwell, Carl Petty *Madison*
B. S., Oklahoma Agricultural and Mechanical College, Agronomy.
Blanchard, Araminta Pearl *Fennimore*
B. A., University of Wisconsin, Botany.
Blomquist, Arthur Waldemar, *Shelley, Idaho.*
B. S., Whitman College, Political Science.
Bond, Elsie Davis *Madison*
B. A., University of Oregon Home Economics.
Bonnell, John Kester *Madison*
M. A., Harvard University, English.

Bourn, Nora Edith	*Stilesville, Ind.*
B. A., Indiana University,	Botany.
Boutwell, Paul Winslow	*Madison*
M. A., University of Wisconsin,	Agricultural Chemistry.
Bower, John Alden	*Choteau, Mont.*
B. A., Williams College,	Animal Husbandry.
Bracken, Thomas Stewart	*Madison*
B. S., Bucknell University,	Mathematics.
Brann, John William	*Baileys Harbor*
B. S., University of Wisconsin,	Plant Pathology.
Brannon, James Marshall	*Madison*
B. A., University of North Dakota,	Botany.
Broderick, Thomas Montieth	*Minneapolis, Minn.*
B. A., University of Minnesota,	Geology.
Brown, Iriving Henry	*Madison*
M. A., University of Wisconsin,	*French.*
Bryan, Samuel	*Madison*
M. A., Leland Stanford Jr., University,	Political Economy.
Buell, Pauline Merry t c	*Madison*
B. A., University of Wisconsin,	Romance Languages.
Bunnell, Mary Martha	*Madison*
B. S., University of Wisconsin.	Education.
Burchard, Winfield	*Madison*
M A., University of Wisconsin,	Chemistry.
Burg, Allen George	*Madison*
B. A., Ripon College,	Agronomy.
Burhop, William Henry	*Sheboygan*
B. A., University of Wisconsin,	Political Economy.
Burrill, Alfred Cummings	*Madison*
B. S., Harvard University,	Economic Entomology.
Burton, Anna Livingston	*Livingston*
M. A., University of Wisconsin	Botany.
Buscheck, Alfred Joseph l	*Manitowoc*
B. A., University of Wisconsin,	Political Science.
Cahn, Alvin Robert	*Chicago, Ill.*
B. S., Cornell Agricultural College,	Zoology.
Cahoon, Annie Rowland	*Racine*
Ph. B., Milwaukee-Downer College,	Physical Education.
Cantril, Edna Edith	*Madison*
B. A., University of Wisconsin,	Physical Education.
Carmody, Winifred Mary	*Sinsinawa*
B. A., St. Clara College,	Latin.
Caro, Raymond Joseph	*Burke, Idaho*
B. A., University of Oregon,	Geology.
Carsner, Eubanks	*Victoria, Texas*
B. A., University of Texas,	Plant Pathology.
Cast, Gottlob Charles	*Lincoln, Neb.*
M. A., Northwestern University,	German.
Cauffield, Arthur John	*Tyrrell, O.*
B. S., University of Chicago,	Geology.

Cavanaugh, Leo Daniel — *Hartford*
B. A., University of Wisconsin, — Political Economy.
Cedarberg, William Emanuel — *Rock Island, Ill.*
Ph. B., Yale University, — Mathematics.
Chu, Fu I. — *Shanghai, China*
B. S., Nanyang College, Shanghai, China, — Electrical Engineering.
Chung, Ngo Pinfore — *Shanghai, China*
B. S., Nanyang College, Shanghai, China, — Electrical Engineering.
Chworowsky, Karl Moses Christian — *Madison*
B. A., Wartburg College, — German.
Conrad, Sara Eugenia — *Madison*
M. A., University of Wisconsin.
Conrey, Guy W. — *Madison*
M. A., University of Michigan, — Soils.
Cooke, Reginald Bancroft — *Madison*
M. A., University of California, — Philosophy.
Coon, Philip Leslie — *Milton*
B. A., Milton College, — Physics.
Corbett, Clifton Sherwin — *Edwardsville, Ill.*
B. A., Northwestern University, — Geology.
Cousins, Clarence Edwin — *Salem, Mass.*
M. A., University of Wisconsin, — French.
Crawford, John Jennings l — *Hazel Green*
B. A., University of Wisconsin, — Political Economy.
Crawford, Willard Goldsworthy — *Mineral Point*
B. A., University of Wisconsin, — Chemistry.
Daane, Adrian N. t c — *Madison*
Ph. B., University of Wisconsin, — Agronomy.
Dahl, Henry — *Blair*
B. S., University of Wisconsin, — Agronomy.
Davies, Henry Richard — *Madison*
B. A., University of Oregon, — Physics.
Davis, Earl Harrison l a p s — *Lincoln, Neb.*
B. A., University of Nebraska, — Political Science.
Dean, Alletta F. — *Madison*
M. A., University of Wisconsin, — Botany.
Deemer, Paul C. — *Madison*
B. A., Allegheny College, — Chemistry.
Desmond, Susie Isabella — *Madison*
Ph. B., University of Wisconsin, — History.
Devlin, Helen Evangeline — *Madison*
B. A., Saint Clara College, — Greek.
Dietrich, Ethel Barbara — *Racine*
B. A., Vassar College, — Political Economy.
Doughty, Helena — *New York, N. Y.*
B. A., Vassar College, — History.
Doyle, Frances Margaret — *Yankton, S. D.*
B. A., Yankton College, — German.

Doyle, James Harold — *Madison*
M. A., University of Wisconsin, — Education.
Drechsler, Charles — *Butternut*
B. S., University of Wisconsin, — Plant Pathology.
Drescher, Henry Adolph — *Sun Prairie*
B. S., University of Wisconsin, — Agricultural Chemistry.
Duffus, William McGlashan — *Madison*
M. A., University of Wisconsin, — Political Economy.
Dupray, Martin — *Rozel, Kansas*
B. S., Kansas State Agricultural College, — Bacteriology.
Eckhardt, Clara Mary — *Toledo, O.*
B. A., University of Illinois, — Political Economy.
Edson, Fannie Carter — *Deerwood, Minn.*
B. A., University of Wisconsin, — Geology.
Edwards, Martha Letitia — *Madison*
M. A., University of Wisconsin, — American History.
Edwards, Merwin Guy — *Ashland*
M. A., University of Wisconsin, — Geology.
Ellsworth, Clara Amelia — *Oregon*
B. A., University of Wisconsin, — Botany.
Emery, Jennie Frances — *Fargo, N. D.*
B. A., Fargo College, — English.
Ernst, Frederic A. C. — *Madison*
M. A., University of Wisconsin, — French.
Essinger, Anna — *Madison*
German.
Estensen, Ernest Verne t c — *Sherman, S. D.*
B. A., Red Wing Seminary, — English.
Evans, Frank Caradoc — *Camden, Me.*
M. A., Bowdoin College, — Chemistry.
Ewing, Elizabeth Learoyd — *Madison*
M. A., University of Wisconsin,
Falconer, John Ironside — *Madison*
M. S., University of Wisconsin, — Agricultural Economics.
Farrar, Victor John — *Madison*
M. A., University of Wisconsin, — History.
Fasten, Nathan — *New York, N. Y.*
B. S., College of the City of New York, — Zoology.
Feuling, Ellen Marie — *Madison*
B. A., University of Wisconsin, — Journalism.
Finch, Vernor Clifford — *Madison*
B. S., University of Chicago, — Geology.
Fitch, Ruth — *Milwaukee*
B. A., Vassar College, — Political Economy.
Fleming, Anna Rhea — *Madison*
B. S., University of Wisconsin, — Physics.
Flint, Alfred Thomas — *Madison*
B. A., University of Wisconsin, — Political Economy.
Foote, Frank McDonald — *Lodi*
B. A., Lawrence College, — Agriculture.

Frederick, Alexander E. *Kendall.*
L. L. B., Georgetown College, Hellenistic Greek.
Fry, Thornton Carle *Madison*
M. A., University of Wisconsin, Mathematics.
Fuller, William John *Madison*
B. A., University of South Dakota, Engineering.
Galland, Joseph Stanislaus *Madison*
M. A., University of Wisconsin, Romance Languages.
Gardiner, Charlotte Georgia *Madison*
B. A., University of Wisconsin, English.
Gay, Sidney *Madison*
B. S., University of Wisconsin, Animal Husbandry.
Geller, Henry William *Superior*
M. S., University of Illinois, Agricultural Education.
Getchell, Robert Ward *Cedar Falls, Ia.*
B. A., Iowa State Teachers College, Chemistry.
Gilbert, Edward Martinius *Madison*
Ph. B., University of Wisconsin, Botany.
Gilman, Joseph Charles *Racine*
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Glaeser, Martin Gustave *Sheboygan*
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Altmeyer, Arthur Joseph tc *De Pere*
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Armstrong, Margaret tc *Phoenix, Ariz.*
Arneson, Matilda *Barneveld*
Austin, Esther Lavinia tc *Eagle River*
Bacharach, Sidney *Dixon, Ill.*
Baer, Bessie tc *Baraboo*
Barnett, Idah Marie tc *Neenah*
Bartmann, Selma Henrietta tc *Marshfield*
Baskerville, Grace Dilla tc *Madison*
Baskerville, Stella Edith tc *Madison*
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Boyd, Charles Elmore *Marinette*
Boyd, William Joseph tc *Sturgeon Bay*
Brandt, Rose Katherine tc *Osceola*

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Bredesen, Inga Martha	*Rio*
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Brindley, Benjamin Reed	*La Crosse*
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Brown, Jenoise tc	*Oshkosh*
Brown, Louise Withee tc	*Chicago, Ill.*
Brundage, Dean Kennedy	*Madison*
Buell Mary Van Rensselaer	*Madison*
Bundy, Harry Eugene m	*Milwaukee*
Burgard, Grace tc	*Creston, Ia.*
Burrell, John Angus	*Chouteau, Mont.*
Bushfield, Anne Mary	*Madison*
Buswell, Janet Elizabeth tc	*Peoria, Ill.*
Bybuth, Matilda tc	*Eau Claire*
Calhoun, Helen Margaret tc	*Glencoe, Ill.*
Cameron, Mary Regina tc	*Chippewa Falls*
Carr, Marguerite Blanche tc	*Adams, Minn.*
Cartier, Morgan Edward	*Madison*
Cash, Mary Josephine tc	*Superior*
Caswell, Mildred C. tc	*Fort Atkinson*
Chase, Ernestine Emma tc	*St. Joseph, Mo.*
Chave, Ella Bean tc	*Tomahawk*
Chovey, Paul Purshotham m	*Bombay, India*
Cibelius, Charles Anthony m	*Racine*
Cleveland, Ewart tc	*Madison*
Coerper, Florence Maud tc	*Hartford*
Collins, Paul Fisk m	*Stevens Point*
Collver, Marguerite Gillis tc	*Clinton*
Congdon, Ferne Lina wls	*Delavan*
Coon, Anna Margaret tc	*Rhinelander*
Cooper, Inez Beardsley tc	*Madison*
Cottingham, Lelia Maude tc	*Charleston, Ill.*
Cotton, Carol Wright tc	*La Crosse*
Cox, Winifred Lorn tc	*Cairo, Ill.*
Crane, Mary Alice Whitaker tc	*Brooklyn, N. Y.*
Crile, Dennis Rider Wood m	*Madison*
Cronin, Katherine Lucile tc	*Oconomowoc*
Crouse, Laura Louise	*Cincinnati, O.*
Dallwig, Herbert Carl m	*Milwaukee*
Dallwig, Leon Eugene m	*Milwaukee*
David, Jessie Lucille tc	*Montfort*
Davies, Marion Lorraine tc	*Dixon, Ill.*

Davis, Harold Marvin	*La Crosse*
Davis, Homer Allan l	*La Crosse*
Davis, Marjory Anna	*Madison*
Davis, Melvin Knolen tc	*Bedford, Ind.*
Deming, Cora Lucille	*Madison*
Dickinson, Mary Virginia	*Madison*
Dobie, Walter Logie	*Madison*
Dodge, Chester Lyman tc	*Madison*
Doege, Karl Hermann m	*Marshfield*
Doren, Alice Macartney	*Dayton, O.*
Dorman, Florence	*Freeport, Ill.*
Dostal, Bernard Francis	*Milwaukee*
Dunn, Tsoongung	*Soochow, China*
Dyar, Edna Gerrish m	*Madison*
Eberle, George Jacquin	*Madison*
Edwards, Frank Merle	*Ft. Atkinson*
Eldred, Frank Claude	*Berlin*
Erdman, Walter George tc	*Oshkosh*
Fagan, Riah Belle tc	*Columbia City, Ind.*
Farley, Mary Margaret tc	*Madison*
Fay, Laura Leota tc	*Whitewater*
*Fertig, Clarence Hiram	*Milwaukee*
Fitzgibbon, Alice Elizabeth tc	*Waunakee*
Foley, Eva Winifred tc	*Baraboo*
Foxwell, Alice Adele tc	*Racine*
Franzen, Ella Catherine	*St. Paul, Minn.*
Frederickson, Jean Fyfe tc	*Madison*
Fries, Gyneth Theo tc	*Richland Center*
Frost, Edna Hays tc	*Almond*
Gasser, Almond Proctor tc	*Arcadia*
Gedney, Mary Anderson	*Onalaska*
George, May Olive	*Ypsilanti, Mich.*
Getts, Clark Hallam l	*Whitehall*
Gillis, James Peter m	*Deerbrook*
Gilman, Laura Leonard	*Madison*
Godfrey, Alfred Laurence	*Whitewater*
Godfrey, Margret Elizabeth Jane tc	*Whitewater*
Goodrich, Winifred Belle tc	*Milton Jct.*
Grady, Agnes Scanlan tc	*Madison*
Graff, Marshall Conant tc	*Elkhorn*
Grammes, Walter Henry	*Tiffin, O.*
Grannis, Edith Emily H.	*Mankato, Minn.*
Griffith, Harry B. l	*Harlan, Ia.*
Grubb, Clare Marie tc	*Janesville*
Haley, Camilla Myrtle tc	*Madison*
Hall, Agnes Mary	*Elgin, Ill.*
Hall, Marcia Biddison	*Mukwonago*
Hallam, Arthur Wood	*Madison*

* Died November 5, 1913.

Hallisey, Loretto Genevieve tc	*Baraboo*
Hanaman, Wallace Winslow	*Madison*
Harper, Carl Samuel m	*Madison*
Harris, James William Jr.	*Winnetka, Ill.*
Harrison, Helen Dorsey	*La Crosse*
Hartung, Mata Caroline E tc	*Two Rivers*
Hartwig, Harvey Clarence l	*Milwaukee*
Harwick, Wearne Edward	*Madison*
Head, Catherine Esther	*Madison*
Head, Jerome Reed	*Madison*
Heddles, Beula Sloan tc	*Madison*
Hein, Regina Mary tc	*Madison*
Henderson, Annie Livingstone tc	*Chicago, Ill.*
Henning, Sherburne Bryant	*Milwaukee*
Hewitt, Mary Anne tc	*Madison*
Hibbert, Norma Dora tc	*Milwaukee*
Hill, George Crawford	*Grand Rapids*
Hillesheim, George Reinhard m	*Madison*
Hoefer, Ruby Anna tc	*Freeport, Ill.*
Hollingsworth, Sylvia Adeline tc	*Dubuque, Ia.*
Hollister, Clarence Allan tc	*Racine*
Hommel, Placido Ramos Vasquez m	*Neillsville*
Horsley, Clara Alice	*Kingsville, Mo.*
Hörst, Anna Elizabeth tc	*Oshkosh*
Howlett, Irving Richard	*Madison*
Hsü, Tsun-Chau	*Zan-Chow, China*
Hubbard, Dorothy Rowe tc	*Madison*
Hudson, Margaret Marie tc	*Madison*
Huth, Raymond William	*Watertown*
Ivey, Marguerite Elizabeth tc	*Mineral Point*
Jamieson, Hugh John	*Poynette*
Jandl, Charles tc	*Racine*
Jay, Florence	*Madison*
Jennings, Rhea Mabel tc	*Neenah*
Johnson, Ethel Helen tc	*Waupaca*
Johnstone, Edward Knox	*Keokuk, Ia.*
Jolivette, Edna Emma tc	*La Crosse*
Jolivette, Eva Lou tc	*La Crosse*
Jones, Howard Mumford	*La Crosse*
Jordan, Claudia Blanche tc	*Lancaster*
Kabat, Mary Wright tc	*Reedsville*
Kanouse, Mary tc	*Madison*
Kayser, Helen	*Madison*
Kearney, Jeannette	*Racine*
Keith, Winifred Maude tc	*Galesville*
Kerr, Spencer Hall	*Catonsville, Md.*
Kiekhoefer, Alma Elenore tc	*Madison*
Kingdon, Jessie Margaret tc	*Brooklyn*
Klein, Ruth Katherine tc	*Manchester, Ia.*
Kleinheinz, Amelia Victoria tc	*Madison*

Koehler, Lucy Josephine tc	*Menominee Falls*
Kolls, Alfred Conrad m	*La Crosse*
Koltes, Raphael Peter	*Waunakee*
Kootz, Arthur Carl	*Milwaukee*
Krueger, Edward Anthony	***Chicago, Ill.***
Kurz, Minnie Georgia tc	*Milwaukee*
Lacher, Gilbert Lincoln	*Waukesha*
Larkin, Aloysius James m	*Whitewater*
Lauder, Frances tc	*Wahpeton, N. D.*
Lay, Ung-Chih	*Wuchang, China*
Leary, Mary Cecil tc	*Madison*
Lee, Henry Gustave	*Madison*
Leenhouts, Frances Elizabeth tc	*Milwaukee*
Leicht, William Freeman Vilas tc	*New Lisbon*
Lenroot, Dorothy Clough	*Superior*
Lewis, Cora Cole tc	*Wichita, Kansas*
Liang, Chi Tai	*Hongkong, China*
Lindstrom, Ernest Walter	*Chicago, Ill.*
Lobdell, Ruth Bernice tc	*Mukwonago*
Lofland, Charles Ewing, Jr.	*Oskaloosa, Ia.*
Loh, S. K. Tachnen	*Soonkiang, China*
Lu, Shon Wen	*Canton, China*
Lundberg, Gertrude Adele tc	*Fish Creek*
Lynch, John Thomas	*Scottsville, Va.*
McCarthy, Alice Lillian tc	*Madison*
McClenahan, Martha Gillette tc	*Cedar Rapids, Ia.*
McCormick, John Vincent l	*Madison*
MacDougall, Eva Florence tc	*Whitewater*
McGilvary, Margaret Cornelia tc	*Madison*
McGranahan, Agnes Camilla tc	*Platteville*
McMillen, Florence Cynthia tc	*Fort Atkinson*
McQuillan, Letitia Helen tc	*Merrill*
Mach, Edward tc	*Kewaunee*
Mahre, Michael Alfred tc	*Denzil, Sask., Can.*
Mailer, Katherine Margaret tc	*De Pere*
Manegold, Edna Hermina tc	*Milwaukee*
Matteson, Mabel Claire tc	*Leon*
Maw, Irene Augusta tc	*Madison*
May, Phyllis Crawford tc	*Platteville*
Melaas, Esther Adella	*Madison*
Melby, Freda tc	*Madison*
Menninger, Karl Augustus m	*Topeka, Kans.*
Merkel, Harold Leland l tc	*Milwaukee*
Millard, Marland Boyd	*Markesan*
Miller, Gladys tc	*Madison*
Miller, Lloyd Dougherty tc	*Grand Rapids*
Miner, Georgia Willetta tc	*Clinton*
Mitra, Khagendra-narayan	*Malda, Bengal, India*
Mittelman, Edward Becker	*Milwaukee*
Mohr, Edna tc	*Milwaukee*

Morris, Caroline Ruth tc	*Oshkosh*
Morrison, Elton Joseph, Jr. l	*Chetek*
Motoyama, Tokuzoh	*Satsuma, Japan*
Mount, Kathryn Elizabeth tc	*Chicago, Ill.*
Myhre, Neena Rebecca	*Fairchild*
Myrland, Arthur Lucius	*Madison*
Neprud, Maud Eunice tc	*La Crosse*
Newman, Elsie Elizabeth Laura tc	*Madison*
Nickerson, Lona Belle	*Madison*
Nickerson, Pearl Irene	*Madison*
Obata, Shigi Yoshi	*Osaka, Japan*
O'Brien, Teresa Veronica tc	*Fond du Lac*
O'Callaghan, Eleanor Marguerite tc	*Norway, Mich.*
O'Callaghan, Marie Evangeline tc	*Iron Mountain, Mich.*
Ofstie, Edda Valborg tc	*Eau Claire*
O'Hora, Bernard Anthony m	*Madison*
Osann, Dorritt	*Oak Park, Ill.*
Otjen, Christian John l	*Milwaukee*
Payne, Randolph Rogers	*Cleveland, O.*
Pedersen, Erna Sofie tc	*Racine*
Penfound, Mona	*Superior*
Perry, Charles Stanley	*Wauwatosa*
Pfeiffer, Charles Albert tc	*Franklin*
Phillips, Hazel Mae tc	*Waupaca*
Pollock, Willits	*Milwaukee*
Porter, Claude Tillinghast	*Dwight, Ill.*
Porter, Monica tc	*Elkhorn*
Post, Eveline Margaret	*Edgerton*
Pressentin, Olga Charlotte	*Madison*
Quale, Milton Norman l	*Madison*
Rakshit, Hemendra Kisor	*Dacca, India*
Rawson, Adelaide	*Eau Claire*
Reber, Hugh Jackson	*Madison*
Reid, Dwight Logan	*Waunakee*
Reinhart, George Stanley tc	*Toledo, O.*
Reitz, Carrie Jean tc	*Madison*
Rice, Ruth Catherine wls	*Madison*
Richardson, Lemont Hunter l	*Sheboygan Falls*
Richardson, William Dunn	*Milwaukee*
Robbins, Blanche Gertrude	*Des Moines, Ia.*
Roberts, Jessie Louise	*Superior*
Robinson, Byron Lewis m tc	*Oconomowoc*
Roos, Edmund Carl m	*Oshkosh*
Ross, Anne Henriette Elizabeth tc	*Milwaukee*
Ross, Florence tc	*Appleton*
Roudebush, Mary Torrey m	*Memphis, Tenn.*
Rowley, Alden Bruce	*Madison*
Rubin, Charles Augustus	*Milwaukee*
Rubin, Victor	*Milwaukee*
Rundell, Richard Edwin	*Chicago, Ill.*

Runge, Ralf Thiele	*Baraboo*
Rusch, Harry Frederick	*Fargo, N. D.*
Rutledge, Wiley Blount Jr.	*White Pine, Tenn.*
Salsman, Gertrude Anne tc	*Madison*
Sawyer, Ruth Elizabeth tc	*Menominee, Mich.*
Schley, Percy George	*Milwaukee*
Schlomovitz, Benjamin Herman m	*Milwaukee*
Schmidt, Ella Dorothea tc	*Milwaukee*
Schoenleber, Louise Anne tc	*Milwaukee*
Schoewe, Walter Henry tc	*Milwaukee*
Schwab, Mabel Lloyd tc	*Milwaukee*
Schweizer, Karl Theodore	*La Crosse*
Scott, Almere Louise	*Madison*
Scott, Martha Helen	*Richmond, Ind.*
Seeberg, Elizabeth Alexander tc	*Milwaukee*
Segall, Julius	*Superior*
Senty, Elmer George m	*Arcadia*
Seymour, Helen	*Hubbard Woods, Ill.*
Shadall, Elsa Helen tc	*Milwaukee*
Shanhouse, Louis J. l	*Rockford, Ill.*
Shea, Susan Cecil tc	*Green Bay*
Sheets, Marjorie Naomi tc	*Columbus, O.*
Sherman, Minnie Belle tc	*Le Mars, Ia.*
Shostac, Percy B.	*New York, N. Y.*
Sieb, Vera Lorraine tc	*Valparaiso, Ind.*
Singleman, William Jay	*Merrill*
Skinner, Merrill Edmund	*Madison*
Smith, Daniel Du Pre	*Madison*
Smith, Kenneth Blume	*Viroqua*
Smith, Pearl Mabry	*Madison*
Smith, Vera Louise Davies tc	*Beloit*
Soutar, Richard Gray	*Lake Geneva*
Springer, Ruth Elizabeth tc	*Mineral Point*
Stafford, Robert Ridgeway	*Chicago, Ill.*
Statz, Alma Elizabeth tc	*Madison*
Steensland, Lohra tc	*Madison*
Stimes, Harriett Elenore tc	*Capron, Ill.*
Stoltz, Oscar William	*Madison*
Strehlow, Robert Roy l	*Madison*
Strelow, Idelle Celeste t c	*Madison*
Sullivan, Margaret t c	*Madison*
Sumner, Jessie Walthew t c	*Madison*
Sundet, Margaret t c	*Chippewa Falls*
Swan, Jane Idelle t c	*Mazomanie*
Taylor, Agnes Laura	*Barron*
Taylor, Eugene Cowles	*Huron, S. D.*
Taylor, Gertrude Diana t c	*Delavan*
Taylor, Marjory Helen t c	*La Crosse*
Te Selle, Hazel Rosazalia t c	*Sheboygan Falls*

Thiel, John August l	*Chilton*	
Thoma, Valeria t c	*Madison*	
Thompson, William Sterling	*Madison*	
Tierman, William Lawrence	*Edgerton*	
Tilden, Chloe Elizabeth t c	*Wausau*	
Tolg, Clarence Charles	*Waukesha*	
Tormey, Albert Robert m	*Madison*	
Towne, Laura t c	*Madison*	
Townsend, Eugene Herbert m	*New Lisbon*	
Trottman, Nelson Smith	*Milwaukee*	
Turgasen, Francis Edward m	*Richland Center*	
Turner, Glenn Patterson l a p s	*Madison*	
Vergeront, Glen Wallace t c	*Madison*	
Vinje, Janet	*Madison*	
Vitz, Frank Edward t c	*Plymouth*	
Volk, Hubert Thomas	*Plymouth*	
Walker, Albert James	*Markeson*	
Walker, Gertrude Gwendolyn	*Racine*	
Waller, Theodore Adolph	*Spring Valley*	
Wangard, Emily Clara t c	*Milwaukee*	
Ward, Mabel Lucy t c	*Evanston, Ill.*	
Warmingham, Josephine Nichols	*Genoa Junction*	
Waste, Florence Claire t c	*Antigo*	
Waters, Mary Imelda	*Jackson, Nebr.*	
Welter, Helen Margaret	*Moorhead, Minn.*	
Wheeler, Gladys Evelyn t c	*Wauwatosa*	
White, Irvin Arnold l t c	*Antigo*	
Williams, Beth Elinor t c	*Genoa Junction*	
Williams, Edward Busch	*Cedar Rapids, Ia.*	
Williams, Florence Clair	*Clear Lake, S. D.*	
Williams, Helen Agnes t c	*Milwaukee*	
Williams, Ruth Lenore t c	*Boscobel*	
Winger, Alice Vandeveer t c	*Springfield, O.*	
Winn, Henry Newton m	*Poynette*	
Winslow, Joseph Charles	*Omro*	
Wong, Ming D.	*Shanghai, China*	
Wood, Ruth Rebecca t c	*Helena, Mont.*	
Woodhouse, Lucile Anna t c	*Bloomington*	
Worthing, Hugh Otis	*Oakfield*	
Wrigley, Roy Fielding	*Albion, Ind.*	
Yewdale, Ralph Bailey	*Milwaukee*	
Zaegel, Robert Lupinski m	*Sheboygan*	—367

Course in Commerce

Berger, Walter Julius	*Milwaukee*
Bernard, Burchard Peter Oscar	*Mayville*
Binzel, Clarence William	*Milwaukee*
Borgeson, Elmer Martin	*Oconomowoc*
Bradish, Ralph Partridge	*La Crosse*

Brewer, Everett Robert	*Chicago, Ill.*
Bruce, Malcolm Carter	*Madison*
Brumm, Lester Frank	*Madison*
Bur, Joseph	*Green Bay*
Butts, George Henry t c	*Evansville*
Conley, Charles Le Roy	*Clinton*
Daly, Percifer Charles	*Grand Rapids*
Denninger, Francis Arthur	*Watertown*
Dettmann, Edwin Albert	*Sheboygan*
Dohr, James Lewis	*Madison*
Duerr, Herbert Jacob l	*Wauwatosa*
Easthope, Stanley Roy	*Chicago, Ill.*
Evans, John Clement	*Evansville*
Fehlandt, John Carl, Jr.	*Madison*
Fitger, Arnold Kirst	*Duluth, Minn.*
Goble, Clyde Orin	*Lancaster*
Gullickson, Gerhardt Oscar	*Eau Claire*
Habermann, Lucius Clement	*Lodi*
Hammond, Ralph Perry	*Wauwatosa*
Heald, Howard Leslie	*Oak Park, Ill.*
Heymann, Walter Mayer	*Chicago, Ill.*
Hickox, Samuel Silkman	*Milwaukee*
Hirsch, Charles Harper	*Milwaukee*
Hoeveler, Leo George t c	*Madison*
Holmes, William Heberling	*Madison*
Jirgal, John James	*Superior*
Jones, Charles William	*Madison*
Jones, Donald Lahann	*Burlington*
Kahn, Leon Edmund	*Milwaukee*
Koch, Orville Cyrus	*Plymouth*
Kress, John William	*Tomah*
Lane, John Augustine	*Eagle*
Linn, Alexander Toris	*Stoughton*
Lister, Harold R.	*Sibley, Ia.*
Livingston, Curtiss Burr	*Forest Grove, Ore.*
McCarthey, Glen Elroy	*Janesville*
McLean, Annis Cleveland	*Madison*
Miller, Peter Henry	*Milwaukee*
Nelson, Benjamin Louis t c	*La Crosse*
Norem, Charles Arthur	*Bryant*
O'Neil, Eugene H.	*Chippewa Falls*
Ovrom, Fred Elmer	*Waupaca*
Peterson, Ernest Archie	*Blair*
Pomeroy, Herbert Stuart	*Oconomowoc*
Priester, Henry Carl	*Davenport, Ia.*
Ray, Myron Thompson	*Madison*
Reichert, Edward Edgar	*Madison*
Rohn, Franklyn Albert	*Milwaukee*
Salisbury, Philip Sidney	*Oregon*
Sands, Albert Theodore	*Chippewa Falls*

Simmons, Lynn Archibald	*Corkss*	
Sporleder, Willard Moorehouse	*Wauwatosa*	
Tandberg, Alvin	*Madison*	
Vincent, James Attmore	*Davenport, Ia.*	
Vits, Earl Oscar	*Manitowoc*	
Weber, Henry	*Milwaukee*	
Weinberger, John Fred	*Chippewa Falls*	
Wells, Leland Allison	*De Pere*	
Wetzel, Harry Clarence	*Milwaukee*	
Wildemann, George Henry	*Madison*	
Williams, Milton Bryan	*Seneca, Kansas*	—66

Course for Normal School Graduates

Bielefeldt, Herman August t c	*Cochrane*	
Blackmun, Roy Martin t c	*West Bend*	
Blaisdell, Mae Belle t c	*Darlington*	
Calvert, Isabelle Maude t c	*Benton*	
Clark, Edith Bassett t c	*Whitewater*	
Flannigan, Marion Leslie t c	*Beaver Dam*	
Foley, Katherine Ellen t c	*Juneau*	
Fried, Orrin Adolph	*Fountain City*	
Hamilton, Bertha Malinda t c	*Baraboo*	
Jay, Erskine La Verne t c	*Bloomington*	
Kreuger, Leonard Bayliss t c	*Muskego*	
Lamson, Frederick William t c	*Roberts*	
Metcalf, Margaret Frances t c	*Shullsburg*	
Mitchell, Helen Elizabeth t c	*Argyle*	
Raymond, Eleanor Frances t c	*Chippewa Falls*	
Salter, Jennie May	*Unity*	
Schumann, Hedwig t c	*Milwaukee*	
Stevens, Benjamin Alonzo t c	*La Crosse*	
Stevens, Eva Emily t c	*Madison*	
Stevenson, Vernetta Viola t c	*Marinette*	
Turgasen, Anna Julia	*Richland Center*	
Twomey, Thomas Leo	*Madison*	
Uren, Alan t c	*Jonesdale*	—23

Course in Chemistry

Austin, Carl Noyes	*Madison*	
Bentley, Wayne Harrison	*Stevens Point*	
Chaplin, Edgar Lee	*Plymouth*	
Duggan, Arthur Jacob	*Bradford, Pa.*	
Dunkel, Arthur Albert	*Phillips*	
Gelatt, Arthur Alvin	*La Crosse*	
Hadfield, William Adrian	*Madison*	
Hoverson, Ethel Madeline	*Milwaukee*	
Jones, Maldwyn Lloyd	*Racine*	
Piper, Homer Allen	*Madison*	

Ritter, Philip August	*Milwaukee*	
Sutton, Clarence George	*Lyons*	
Wilson, Thomas Leslie	*Madison*	
Wong, John	*Peking, China*	
Young, Kwang Pi	*Tientsin, China*	—15

Course in Journalism

Bond, Genevieve Adeline	*Lakefield, Minn.*	
Brayton, Arthur Holmes	*Lyons, Ia.*	
Frautschi, Edna Elizabeth	*Madison*	
Haake, Alfred Paul	*Madison*	
Nelson, John Bastian	*Eau Claire*	
Powell, Walter Daniel t c	*Reedsburg*	
Rannenberg, George Christian Louis	*Madison*	—7

JUNIORS

Abrams, Helen	*Lancaster*
Achtenberg, Henrietta Lorraine	*Madison*
Adams, Howard Allen	*Oak Park, Ill.*
Adams, William Karl	*Madison*
Adler, John Henry	*Milwaukee*
Agrell, Elsa Eugenia t c	*Superior*
Alexander, Irma Elizabeth t c	*Lake Geneva*
Allen, Herman Joe	*Belleville*
Allen, Ruth Marguerite	*Chelsea*
Anderson, Elna Constance t c	*North Crandon*
Anderson, Ethelwyn	*Madison*
Anderson, George Herman m	*La Porte, Ind.*
Anderson, Lewis Orvin t c	*Barneveld*
Anderson, Mamie Elizabeth t c	*Grantsburg*
Anderson, Stanley Augustus	*Superior*
Andrews, Olive Viola t c	*Oshkosh*
Angvick, Rachel, w l s, t c	*Ashland*
Arnold, Bird Mabel m	*Glen Ellyn, Ill.*
Astell, Elsie Genevieve t c	*Madison*
Astle, Emily Louise t c	*Momence, Ill.*
Aurland, Margaret t c	*Minot, N. D.*
Axtell, Lee Reuben	*Cassville*
Bachmann, Harold Albert m	*Sheboygan*
Baillie, Joseph Michael	*Madison*
Baker, Marion Virginia w l s	*Madison*
Baldwin, Marguerite t c	*Milwaukee*
Baldwin, Merle Mary t c	*Dubuque, Ia.*
Bauer, William Waldo m	*Milauwkee*
Bauman, Lily Katharine t c	*Mendota, Ill.*
Bautz, Gladys June t c	*Milwaukee*
Beach, Bertha Ruth	*Madison*

Behrens, Gertrude Dorothea	*New Richmond*
Beim, Mildred Honor t c	*Des Moines, Ia.*
Bemis, Mary Scoville	*Madison*
Benson, Jeannette	*Greenwich, Conn.*
Bentley, John Edward m	*Portage*
Best, Louis Freeman t c	*Madison*
Biart, Nathaniel Paul	*Madison*
Bitner, Alice Ladd t c	*Milwaukee*
Black, Ethalinda Grace	*Mt. Washington, Md.*
Blackall, Elizabeth Weigand l a p s	*New York City*
Bohlmann, Alma Mathilda	*New London*
Bollenbeck, Joseph William	*Madison*
Boorse, Mary M.	*Milwaukee*
Breck, Sarah Ellis	*Milwaukee*
Breidablik, Ellida Julia	*Madison*
Brindley, Roy m	*Boscobel*
Brookins, Medora Clarke	*Madison*
Brown, Clarence John m	*Plum City*
Brown, Mabel Mary	*Platteville*
Brown, Mary Storer t c	*Madison*
Brownell, Isabella Frances t c	*Chicago, Ill.*
Brunner, Edwin James	*Albion, Mich.*
Buech, William Frederick	*Milwaukee*
Buerki, Robin Carl m	*Waukesha*
Bull, Benjamin Henry	*Galesville*
Bundy, Dorothy Etta	*Centralia, Ill.*
Burdick, Marjorie	*Kalamazoo, Mich.*
Burke, John Edward	*Milwaukee*
Caldwell, Dorothy Alden t c	*Lafayette, Ind.*
Carns, Marie Louise t c	*Knoxville, Ill.*
Chai, Chun-lin	*Lanchow, China*
Charlesworth, Guy Roswell	*Kaukauna*
Chen, Shin Yuen	*Canton, China*
Clark, Leona Letitia w l s, t c	*Portage*
Clark, Warren Edward	*Chicago, Ill.*
Clark, Will Arthur	*Belmont*
Clarke, Anna	*Whitewater*
Coapman, Verne E.	*Wyocena*
Coleman, Bessie Mae	*Madison*
Collver, Flora Bartlett	*Clinton*
Commons, John Alvin	*Madison*
Connors, Leora Agnes	*Kaukauna*
Conover, Frederic LeRoy	*Madison*
Cooper, Fred Macomber	*Chicago, Ill.*
Corbett, Gertrude Marion	*National Home*
Cronander, Marjorie Anna t c	*Moline, Ill.*
Curry, Margaret McCune t c	*Terre Haute, Ind.*
Dafoe, Gladys Gertrude t c	*Wautoma*
Dahle, Clarence Arthur	*Brownsdale, Minn.*
Dana, Dorothy Brockway	*Muskegon, Mich.*

Dauplaise, Yvonne Marie t c	*Superior*
Davis, Frank Dewey	*Juda*
Dearing, Bradford French m	*Shelbyville, Ill.*
De Garis, Charles Francis	*Hannibal, Mo.*
Dietrich, Jessie Adelaide t c	*Prairie du Chien*
Dillman, Viola Ella	*Madison*
Dobeas, Emma Jane t c	*Ingalls, Mich.*
Donnelly, Ruth Clarissa t c	*Milwaukee*
Douglas, James Lee t c	*Madison*
Dow, Lillian Jessie t c	*Madison*
Draper, Royal Samuel tc	*North Freedom*
Draves, Arthur Robert	*Fond du Lac*
Duggan, Ella Rose t c	*Oshkosh*
Duke, Marion Margaret t c	*Madison*
Edmonds, Rhoda Ann t c	*Madison*
Eifler, Elsie Caroline t c	*Milwaukee*
Eisaman, Ralph Herbert	*Pittsburgh, Pa.*
Emery, Mildred t c	*Madison*
English, Clifford Martin	*Arcadia*
English, Esther Isabelle t c	*Antigo*
Engsberg, Hattie Clara	*Lake Mills*
Farr, Helen Esther w l s	*Eau Claire*
Faust, Wirt Gerry	*Fairmont, W. Va.*
Fellows, Abbie Jane t c	*Lodi*
Fieldstad, Nina w l s	*Waupun*
Findlay, Walter Alexander	*Madison*
Fletcher, Edythe	*Des Moines, Ia.*
Floden, Tuve John	*Rockford, Ill.*
Fogo, Hugh m	*Gillingham*
Ford Herebert Jean t c	*Westfield*
Frankel, Freda Monica t c	*Eagle River*
French, Roy La Verne	*Madison*
Fritsche, Albert m	*New Ulm, Minn.*
Fuller, Fannie Alberta t c	*Whitewater*
Gabler, Arthur	*Highland*
Gamble, Isabella Anna t c	*Milwaukee*
Gannon, Florence G. t c	*Enid, Okla.*
Garber, Ada Ruth t c	*Muskegon, Mich.*
Garbutt, Ethel Grace t c	*Milwaukee*
Gath, Gertrude Verena t c	*Madison*
Gatterdam, Eugene Alfred m	*La Crosse*
Gay, Mabel Theressa t c	*Morris, Ill.*
Gebhart, Corinne t c	*Kenosha*
Gehrz, Alma Madeleine t c	*Milwaukee*
Gentzen, Harold John	*Beaver Dam*
Gieseler, Rudolph Jacob m	*Racine*
Glassner, William	*Milwaukee*
Gleick, Harry Samuel	*Webster Grove, Mo.*
Gray, Nancy Anna	*Madison*
Grebel, Emerson Ralph m	*Green Bay*

Green, Ruth Elizabeth t c	*Fond du Lac*
Grimm, Gladys	*Milwaukee*
Grinde, Harry Andrew	*Madison*
Gustafson, Felix Gustav t c	*Ashland*
Hadden, Helen Grace t c	*Muskegon, Mich.*
Hadden, Jean Morgan t c	*Muskegon, Mich.*
Hagerman, Hildegarde Hazel t c	*Ludington, Mich.*
Hall, Fred Menzo	*Madison*
Haller, Hermine Helene	*Ann Arbor, Mich.*
Haney, Olga Bertha	*Kewaunee*
Hanley, Marguerite Catherine John	*Portage*
Hansen, Alice Myrtle t c	*Neenah*
Hatch, Lucile Dorothy t c	*Baraboo*
Hawley, Bessie Versalee t c	*Argyle*
Hayes, Agnes Mary	*La Crosse*
Hayes, Margaret Elizabeth t c	*Madison*
Heath, George Earl	*Pardeeville*
Hedges, Robert Nathaniel m	*Neenah*
Hektoen, Aikyn t c	*Chicago, Ill.*
Hemphill, Frances	*Neillsville*
Hendricks, Genevieve Estelle t c	*Madison*
Herreid, Cecelia	*Madison*
Herzog, Harry Joseph	*Racine*
Hetherington, Daisy Alford	*Madison*
Hill, Carol Rogers	*Woodstock, Ill.*
Hillberry, Maud Eva m	*Blue River*
Ho, Ping Song	*Chekiang, China*
Hodges Paul Chesley m	*Ashland*
Hollen, Edwin Stanley	*Eau Claire*
Holley, Harriet Electa t c	*Antigo*
Holman, Charles W.	*Madison*
Holman, Clara Marie t c	*Milwaukee*
Horstman, Edith Laura t c	*Beloit*
Hougen, Isabelle Bertine t c	*Wilmot, S. D.*
Howard, Margaret	*Madison*
Howell, Jean Howden t c	*Milwaukee*
Hubbard, William Earle	*Duluth Minn.*
Hunt, Richard Nash	*Madison*
Huntington, Lucile Langson	*Chicago, Ill.*
Hyde, Will Carrington	*Madison*
Isenberg, Walter Carl	*Baraboo*
Jackson, Raymond Thomas l	*Mineral Point*
Jacobsen, Victor Clarence m	*La Crosse*
Jaggard, Clara Louise	*Emporia, Kansas*
James, Henry Francis t c	*Hazel Green*
Jardine, Alice Davina t c	*Detroit, Mich.*
Jenkins, James Francis t c	*Berlin*
Johnson, Donald Peter	*Grand Rapids*
Johnson, Edna Leona	*Sloan, Ia.*
Johnson, Edwin t c	*Washburn*

Jones, Anna Dorothy t c	*Sioux City, Ia.*
Jones, Ida Lucile t c	*Madison*
Juergens, Hubert Frederick t c	*Hamburg, N. Y.*
Kading, Earl Christian	*Deer Lodge, Mont.*
Kahn, Charlotte Sarah t c	*Ishpeming, Mich.*
Kasak, Michael m	*Madison*
Kauffung, Esther Carla t c	*Racine*
Kearney, Katharine Louise t c	*Racine*
Keeler, Ray Monroe t c	*La Crosse*
Keith, Ruth Alice t c	*Galesville*
Kelley, Elizabeth C.	*Mitchell, S. D.*
Kellington, Celestia May	*New Rockford, N. D.*
Kelly, Esther Elizabeth t c	*Milwaukee*
Kidder, Charles Joseph t c	*Madison*
Kidder, Mattie Elizabeth	*Madison*
King, Mary Louise t c	*Hurley*
Kitagawa, Hidejiro	*Tokio, Japan*
Kitchell, Francis Robert	*Chicago, Ill.*
Klumb, Ewald Ulrich	*Milwaukee*
Knight, Minnie Agnes t c	*La Crosse*
Kratsch, Edmund Charles t c	*Milwaukee*
Kraus, Marguerite Viola	*Marshfield*
Kremers, Roland Edward	*Madison*
Krumholz, Louis Eugene t c	*Arcadia*
Laitem, Helene Josephine	*Greencastle, Ind.*
Landau, Lloyd Harold l	*Milwaukee*
Landsberg, Florence Columbia t c	*Erie, Pa.*
Larson, Annie Katherine	*Maryville, Mont.*
Latham, Gwendoline	*Madison*
Leeden, Heebe, t c	*Madison*
Lehnhoff, Mabel Irene t c	*Milwaukee*
Leonard, Sylvia, t c	*Hammond*
LeRoy Maude	*Augusta*
Lewis, Melvina Cora t c	*Appleton*
Lewis, Russell Francis	*Sun Prairie*
Light, Sarah Margaret t c	*Madison*
Loomis, Cornelia Frances t c	*Muskegon, Mich.*
Lunt, Caroline	*Naperville, Ill.*
Lyle, George Margaret t c	*Madison*
McCormick, Joseph	*Milwaukee*
McGarry, Grace Margaret t c	*Walworth*
McGill, Ernest Charles m	*Superior*
McGinley, Earle Edward	*Brooklyn, Ia.*
McGruer, Earl m	*Langdon, N. D.*
McKittrick, Leland Sterling t c	*Eau Claire*
McMurray, Kenneth Charles	*De Kalb, Ill.*
McNeil, Mary Eunice t c	*Stoughton*
Ma, Minghai	*Chili, China*
Mackay, Raymond Cady	*Milwaukee*
Malone, Ralph Douglas	*Beaver Dam*

Mann, Roberta Rice t c	*Muskegon, Mich.*
Mansfield, Esther Caroline	*Milwaukee*
Mardfin, Sylvia	*New York, N. Y.*
Marquart, Ruth	*Madison*
Marshall, Howard Parsons	*Milwaukee*
Marshall, Mabel Minnie	*New York, N. Y.*
Martin, Ada North t c	*Lodi*
Martin, George Hilmar	*Milwaukee*
Martin, Winsor	*Madison*
Masten, Marguerite Adele t c	*Moline, Ill.*
Matthews, Emma Louise t c	*Ishpeming, Mich.*
Matthews, Maude Eunice t c	*Milwaukee*
Mayberry, Hazelle Irene t c	*Clinton*
Mayfield, Alfred Lisle m	*Cataract*
Mengelberg, Gertrude	*Milwaukee*
Meyer, Herman Charles m	*Oshkosh*
Meyers, Nell t c	*Rensselaer, Ind.*
Mielke, Edward Frank m	*Shawano*
Miller, Dora May	*Stoughton*
Miller, Hugh Guy	*Markesan*
Monroe, Ellis	*Yonkers, N. Y.*
Moore, Anna Roseline	*Cambridge*
Moran, Michael David m	*Madison*
Moriarty, James Edgar	*Milwaukee*
Morris, Thomas William t c	*Madison*
Moses, Edward Walter	*Kansas City, Mo.*
Muench, Lili Anna w l s	*Waukesha*
Munro, Jeanette t c	*Madison*
Murphy, Henry Richard t c l	*Beaver Dam*
Nause, Fred August m	*Sheboygan*
Negley, Eleanor Bradford t c	*Dayton, O.*
Newman, Katherine	*Hopedale, Mass.*
Nind, Marjorie Elizabeth t c	*Grand Rapids, Mich.*
Norton, Halbert Eli	*Poynette*
Nowels, Russell Wasson	*Columbia City, Ind.*
Oehler, Sidney Loesch	*Lake Mills*
O'Hora Oscar Joseph	*Madison*
Ollis, Edna Marie t c	*Madison*
Olsen, Esther Georgia t c	*Muskegon, Mich.*
Olsen, Marshall Raymond	*Rice Lake*
Olson, Sigurd Bernhardt	*Calumet, Mich*
Opie, Harold William m	*Rockford, Ill.*
Oren, Elma Tomena t c	*Stoughton*
Owen, Rhoda Esther	*Milwaukee*
Pagar, Shanker Madhav	*Kalamdhara, India*
Parker, Chester Eugene	*Madison*
Parmentier, Jules Merrill l	*Green Bay*
Parsons, Robert m	*Chicago, Ill.*
Patterson, Florence Beth tc	*Mt. Vernon, O.*
Paul, Irene Rosalind tc	*Hurley*

Peacock, Kenneth Cleland m	*Oconomowoc*
Pence, Helen Charlotte tc	*Madison*
Peters, Elsie Vogt tc	*Milwaukee*
Peterson, Elsea Gladys tc	*Sioux Falls, S. D.*
Pettibone, Dorothy Foster	*Madison*
Pickering, Hayden Macy	*Superior*
Pohle, Helen Loudora tc	*Madison*
Pohle, Marguerite Ruth tc	*Madison*
Poor, Cornelius Wyman	*Burlington*
Prees, Reginald D. m	*Cambria*
Prescott Ethel Marguerite tc	*Cambridge*
Price, Hugh Bruce	*Tulare, S. D.*
Prince, Albertine tc	*Chicago, Ill.*
Pritzlaff, Herbert Fredric	*Milwaukee*
Pugh, Betha Margaret	*Racine*
Pugh, Grace Magdalene tc	*Madison*
Rademacher, Henry Stephen l	*Milwaukee*
Radke, Etta Ida tc	*Madison*
Ramser, Harold Alfred m	*Chicago, Ill.*
Rankin, Edna	*Missoula, Mont.*
Rath, Floyd Cecil m	*Sparta*
Ray, Robert Gardiner	*La Crosse*
Reinking, Anita Emma tc	*Madison*
Reiser, Elizabeth Elsie tc	*Wausau*
Rettger, Winifred Russell	*Terre Haute, Ind.*
Reuter, Edward Carl	*Milwaukee*
Riggert, Elda Katherine tc	*Reedsburg*
Righter, Vera Marie	*River Falls*
Risdon, Roland Howard	*West De Pere*
Ritzman, Ralph Roscoe	*Madison*
Roach, Paul Ramsey	*Rock Rapids, Ia.*
Roberts, Royal Arlington	*Racine*
Robinson, Philip Kyle	*Green Bay*
Rogers, Jackson Delos	*Cleveland, O.*
Rosenberg, Louis	*Milwaukee*
Ross, Mae tc	*Superior*
Roth, William Edward tc	*Mauston*
Rush, Ida May tc	*Fort Wayne, Ind.*
Rutledge, Jessie H.	*Sparta*
Sachtjen, Sylvia Marie	*Madison*
Sachtjen, Wilbur Paul	*Madison*
Saleski, Felicitas Anna	*Madison*
Salsbury, Helen Viola tc	*Cazenovia, N. Y.*
Sawyer, Wilda Amy tc	*Menominee, Mich.*
Sayle, Mary Honora tc	*Madison*
Schmidt, Anna Marie tc	*Freeport, Ill.*
Schultz, Harry George tc	*Milwaukee*
Schwartz, George Melvin	*Byron*
Schwind, Benjamin Jacob, Jr.	*Dubuque, Ia.*
Scott, Lucile Lee tc	*Indianapolis, Ind.*

Seward, Walter Edgar	*Pittsfield, N. H.*
Shacoff, Henry m	*Milwaukee*
Shapiro, Esther tc	*Milwaukee*
Simonds, Marshall Garfield	*Chicago, Ill.*
Sims, Emily	*Dodgeville*
Skemp, Archie Ambrose m	*La Crosse*
Skinner, Rachel Lloyd tc	*Madison*
Slawson, Marguerite Frances tc	*Eau Claire*
Slothower, Theodosia May tc	*Denver, Colo.*
Smith, Elizabeth Mary	*Milwaukee*
Spencer, Ernestine Ellen	*River Forest, Ill.*
Springer, Elsie Laura tc	*Mineral Point*
Steiner, Hugh Wynne	*Madison*
Stellberg, Edward Carl	*Racine*
Steuer, Joseph True	*Madison*
Stoeber, Mary Margaret m	*Madison*
Stone, Edith Adrienne	*Kalamazoo, Mich.*
Stone, Frank Moore	*Madison*
Stover, Isabella Byington tc	*Milwaukee*
Stump, Genevieve tc	*Whitewater*
Tang, Man Hoi	*Hong Kong, China*
Thauer, Olive Elizabeth tc	*Watertown*
Thielmann, Marie Anna tc	*West Bend*
Thompson, James Everett tc	*Lisbon, Ia.*
Thompson, Jessica Agnes	*Madison*
Thompson, Lela	*Elmwood*
Thrift, Inez Esther	*Phoenix, Ariz.*
Thuringer, Adele Victoria	*Madison*
Todd, Mary Gill tc	*Dixon, Ill.*
Treakle, Helen Edna tc	*Madison*
Trembly, John McClelland	*Kansas City, Mo.*
Trowbridge, Dorothy Amanda tc	*Viroqua*
Tuttle, Ray Charles tc	*Madison*
Ulrich, Helen Caroline tc	*La Crosse*
Uphoff, Robert Wayne tc	*Cottage Grove*
Vandervort, Lynnette L.	*Madison*
Waite, Gilbert Dillon m	*Madison*
Wakefield, Henry Dorr	*Milwaukee*
Wallace, Lillian May tc	*Mineral Point*
Wallach, Marvin Weil	*Oshkosh*
Warmingham, Osbert Clarence	*Genoa Junction*
Warner, Rollin Aldrich tc	*Sturgeon Bay*
Warner, Wilna Louise tc	*Kewaunee, Ill.*
Watson, Florence Giddings	*River Forest*
Webb, Charles Nicholls	*Lancaster*
Webster, Lilah Marguerite tc	*Independence, Ia.*
Weeks, Bertha Mary	*Racine*
Weller, Stevens	*Milwaukee*
Werner, Raymond Clarence tc	*Milwaukee*
Weston, Burton Raymond m	*Mason City, Ia.*

Whiffen, Clarence Fred tc	*Sheboygan*	
White, Addie M. tc	*Madison*	
White, Rachel Effie tc	*Rhinelander*	
Wilber, Hazel Elizabeth	*Galesville*	
Wilder, Marjorie E. tc	*Evansville*	
Wiley, Myra Rowland	*Superior*	
Wilmanns, Elsa Albertha	*Milwaukee*	
Winkley, Ruth Edna tc	*Wausau*	
Winn, Bessie Sara tc	*Portage*	
Wittmayer, John George	*Madison*	
Wolf, Charles Peter tc	*Random Lake*	
Wood, John Lynn	*Lake Mills*	
Wyman, Elane Emogene	*Ashland*	
York, Pansy Celia	*Superior*	
Youmans, John Barlow	*Mukwonago*	—396

Course in Commerce

Altendorf, Florenz George	*Port Washington*
Barnum, Clifton Lawrence	*Clinton*
Bennett, Keenan Anslow	*Lancaster*
Brann, Paul Gus	*Baileys Harbor*
Budig, Fred George	*Waterloo*
Buelow, Earl Francis	*Waupun*
Carter, Russel J.	*Fremont, O.*
Cohn, Morris Smead	*Omaha, Nebr.*
Conley, John George	*Eau Claire*
Dilman, John Henry	*Geneva, N. Y.*
Duncan, John Nelson	*Green Bay*
Dunkel, Chauncey	*Phillips*
Du Pertius, Henry Jr.	*Madison*
Edmonds, Charles Crawford	*Madison*
Gaertner, Herman Victor	*Madison*
Garst, Warren Carroll	*Des Moines, Ia.*
Gelein, Edwin Anders	*Eau Claire*
Gittings, William Leroy	*Racine*
Habermann, Victor Emanuel	*Lodi*
Harris, Charles Keath	*Superior*
Hicks, Clarence Raymond	*Madison*
Hohaus, Herbert William	*Madison*
Householder, John Clark	*La Farge*
Jensen, Ben Melvin	*Grantsburg*
Knobel, Walter Henry	*Milwaukee*
Koch, Harry Jefferson	*Madison*
Langley, Thorpe Messenger	*Madison*
Lindemann, Albon Blake	*Viroqua*
Lohe, Fred Eugene Jr.	*Manitowoc*
Loomis, Fred Palmerlee	*Ottumwa, Ia.*
Lyons, James Arthur	*Chicago, Ill.*

McKay, Robert Clayton	*Huron, S. D.*	
Matteson, Harold James	*Duluth, Minn.*	
Morley, Frank Gearin	*Madison*	
Nelson, Vernus Edwin	*Argyle*	
Neumann, Lawrence Louis	*Madison*	
Neupert, Emil Herman	*Lake Mills*	
Olson, Amund	*Viroqua*	
Peisch, Archie Marcus	*Eau Claire*	
Peterson, Harry Arthur	*La Crosse*	
Porter, John William	*Oskaloosa, Ia.*	
Portman, Edward Christian Jr.	*Chicago, Ill.*	
Rothe, Lester William	*Kilbourn*	
Sazama, Joseph Elias	*Kewaunee*	
Schimel, Charles Frank	*Tisch Mills*	
Schulte, Isidore John	*Milwaukee*	
Seward, Rossiter L.	*Rochester, N. Y.*	
Smith, Irving Cranford	*Montclair, N. J.*	
Sollett, George Thomas	*Chicago, Ill.*	
Taylor, George Julius	*Madison*	
Thomas, Edward John	*River Falls*	
Thomas, Joseph Peter	*Milwaukee*	
Thoreson, Herman William	*Grantsburg*	
Tillman, Frank William	*La Crosse*	
Timson, Samuel Wilfred	*Madison*	
Tingvold, John Christian	*Eau Claire*	
White, Harry Gordon	*Milwaukee*	
Williams, Wilfred Hamilton	*Whitewater*	
Zillmann, Harold Allen	*Thorp*	—59

Course for Normal School Graduates

Brainerd, Nemi Homer	*Madison*
Brewer, Aubrey Keith	*Richland Center*
Carr, Helen Mae tc	*River Falls*
DeLaney, Mollie tc	*Highland*
Denneen, Irene Estelle tc	*New Richmond*
Edsall, Winifred tc	*Fort Atkinson*
Fitzgerald, Mary Beverley tc	*Madison, S. D.*
Foley, Evern Cecil	*Superior*
Gee, Robert Harold	*Platteville*
Hughes, Morton Palmer tc	*Cambria*
Kumm, Davis W.	*Forestville*
Kurz, Charlotte Louise tc	*Milwaukee*
McNelly, Stephen Sumner	*Neillsville*
Martell, Louis James	*West De Pere*
Powell, Frank Vavasar	*Pleasant Prairie*
Robertson, Claude Howard	*Endeavor*
Rolland, Marius	*Thief River Falls, Minn.*

Schlatter, Fred Edmund tc	*Milwaukee*	
Schmidt, Emma Augusta tc	*Milwaukee*	
Stiehl, Oren Daniel	*Black River Falls*	
Walsh, Aloysius Edward	*Chilton*	
Walters, Everett Leroy	*Galesburg, Ill.*	—22

Course in Chemistry

Bailey, Nathaniel Arthur	*Ashland*	
Bishop, George Marsters	*Albany*	
Blatz, Valentine	*Milwaukee*	
Bock, John Eric	*Milwaukee*	
Brown, Milo Sedgwick	*Hartland*	
Castendyck, Otto Fredrick	*Peru, Ill.*	
Coriell, George Franklin	*Green Valley, Ill.*	
Erickson, Alf	*La Crosse*	
Faville, Katharine Ellen	*Lake Mills*	
Gilbert, Max	*Milwaukee*	
Heinecke, Walter William	*Sheboygan*	
Imig, Walter Joseph	*Madison*	
Lewis, Harold Arthur	*Fond du Lac*	
Marter, Herbert Lambert	*Milwaukee*	
Patt, Roscoe Foote	*Creston, Ia.*	
Roeseler, Oscar Edwin	*Madison*	
Staley, Mortimer Laurie	*Madison*	
Tseng, Yu Mei	*Kiangsu, China*	
Van Natta, Grace Tessie	*Platteville*	
Williams, Garvin Daniel	*Cambria*	—20

Course in Journalism

Bell, Laurence	*Madison*	
Bradway, Mark Wilson	*Madison*	
Crowl, Ralph S.	*Madison*	
Dickinson, Don Clinton	*La Crosse*	
Higgins, Donald Hugh	*Madison*	
Hocking, Bert Whitman	*Appleton*	
Jenness, Harold	*Nampa, Idaho*	
Johnson, Huldah Marie	*Madison*	
Lackey, Vachel Weldon	*Cuero, Texas*	
McMahan, Mary Allman t c	*Crown Point, Ind.*	
Nash, Carrol Donald	*Tracy, Minn.*	
Perrine, Stephen Earl	*Madison*	
Smith, Ashton Kelley	*Superior*	
Smith, Frances Louise t c	*Des Moines, Ia.*	
Stark, Gerald Rockingham	*Delavan*	
Young, Mary Hunt t c	*Alpena, Mich.*	—16

SOPHOMORES

Adams, Ruth Austin	*Chicago, Ill.*
Allen, Perc Thomas	*Benton*
Allman, Major Fisher	*Crown Point, Ind.*
Alvord, Ellsworth Chapman	*Washburn*
Appleyard, George Seaborne	*Ashland*
Arnovitz, Rose Lynne	*Marinette*
Arzberger, Ida Barbara	*Helenville*
Assovsky, Abraham	*Sun Prairie*
Atwood, Fannie Elizabeth	*Madison*
Axon, Margaret Forrest	*Lodi*
Baker, Beatrice	*Evanston, Ill.*
Bannen, Dorothy Agnes	*Milwaukee*
Barnard, Edward Peter	*Marinette*
Barnard, Wilbur Dean	*Beatrice, Nebr.*
Barnbrock, Henry	*Madison*
Baum, Harry Neal	*Madison*
Bayley, Edwin Hobart	*Waupun*
Beamsley, Foster Gilman	*Delavan*
Bechtel, Ethel Elizabeth	*Cavalier, N. D.*
Behrens, Paul Ellsworth	*Chicago, Ill.*
Bell, Donald Chesbro	*Madison*
Bell, Helen Stevens	*St. Joseph, Mo.*
Bemish, George Anthony	*Eau Claire*
Berryman, Brownell	*Lexington, Ky.*
Bickel, John Marcher	*Racine*
Bill, James Raymond	*New Rochester, N. Y.*
Bird, Marie Eaton	*Wausau*
Blied, Garry Russell	*Madison*
Bodman, Charlotte Maconda	*Madison*
Bogart, Franklin Blevins	*Chattanooga, Tenn.*
Bonar, Barnet Edward	*Streator, Ill.*
Bond, Harry William	*Wheeling, W. Va.*
Bongey, Ralph Hutchison	*Deerfield*
Bosshard, Jessie Margaret	*Woodstock, Ill.*
Boulware, Lemuel Rickett	*Springfield, Ky.*
Breakstone, Irving Abram	*Oconto*
Briggs, Henry Russell	*Madison*
Broadfoot, Grover Leigh	*Mondovi*
Brodda, Fred William	*Burlington*
Brown, Randolph Fletcher	*Cuba, N. Y.*
Brownell, Mary Alice	*Brookline, Mass.*
Brunkhorst, Robert Omro	*Milwaukee*
Brunkow, Arthur Herman	*Lake Mills*
Brunner, Louis John	*Leopolis*
Bruns Marion Elizabeth	*Lake Mills*
Bunde, Louis Rudolph	*Milwaukee*
Burlingame, Lois Arlina	*Madison*

Burroughs, Le Roy Stanton	*Milwaukee*
Buseth, Ralph Victor	*Deerfield*
Campbell, Meredith Fairfax	*Lake Geneva*
Cant, Howard Bancroft	*Duluth, Minn.*
Carpenter, Byron Joseph	*Stevens Point*
Carpenter, Elbert Hand	*Racine*
Carter, Kenneth Dwight	*Geneva, O.*
Cartier, Vincent George	*Madison*
Cato, Frank Lee Jr.	*Americus, Ga.*
Chapin, Harold Fountain	*Minneapolis, Minn.*
Charlton, Charlotte Ruth	*Janesville*
Christensen, Dorothy Bess	*Madison*
Church, Edwards Whitaker	*Cincinnati, O.*
Cloe, Rhea Lucile	*Knoxville, Ia.*
Cogley, John Martin	*Sioux Falls, S. D.*
Colby, Grace	*Madison*
Coleman, Dora Leeanna	*Madison*
Collentine, George Ernest	*Monroe*
Connors, Harold Francis	*Hurley*
Conover, Marion Clarke	*Madison*
Conway, William Oakley	*Kenosha*
Cooke, Rodney S.	*Independence*
Crandall, John Seneca	*Milwaukee*
Crosby, Helen Blanche	*Madison*
Cruger, Ruth Hildegarde	*Watertown*
Cunningham, Robert John	*Janesville*
Curtis, Alice Brown	*Madison*
Dahm, Justine Genevieve	*McGregor, Ia.*
Davidson, Max Edgar	*Watertown*
Dean, James Reeve	*Madison*
Dean, James Stanley	*Milwaukee*
DeBolt, Albert Chester	*Madison*
Deming, Genevieve Elizabeth	*Madison*
DeWitt, Goldie Irene	*Belleville*
Dexter, Dorothy Dabb	*Madison*
Dietel, Else Harriet	*Waterloo, Ia.*
Diggle, P. Harold	*Kansas City, Mo.*
Dillman, Ruth Esther	*Milwaukee*
Dixon, Gladys Rose	*Appleton*
Downs, Frank Emmett	*Hurley*
Dresser, Phoebe	*Clinton*
Dunn Charles Bryan	*Madison*
Dunn, Florence Jean	*Madison*
Dunn, Wendell Earl	*La Crosse*
Dunwiddie, Alan Warren	*Janesville*
Dupuy, Mary Elizabeth	*Chicago, Ill.*
Duvall, Gladys Caroline	*Kewaunee*
Eagles, Leon Kimmell	*Albion, Ind.*
Eastman, Arthur Andrews	*South Bend, Ind.*

Ebinger, Ruth Elizabeth	*Aurora, Ill.*
Edwards, Clara Irene	*Ashland*
Eisen, Eugene Ludington	*Milwaukee*
Eitelgoerge, Norma Augusta	*Aurora, Ill.*
Elkington, Maud Alice	*Baraboo*
Elwell, Mary Frances	*McGregor, Ia.*
Emerson, Adolph Herman	*La Crosse*
Evans, Harold Boice	*Madison*
Fairbairn, Helen Salome	*Milwaukee*
Falevsky, Edward Ludwig Carl	*West De Pere*
Fall, George William Brenton	*Madison*
Farisy, Arthur Thomas	*Franklin, Minn.*
Farney, George Bernard	*Racine*
Feldenheimer, Paul Edgar	*Portland, Ore.*
Felsher, Augusta Rosa	*Madison*
Felsher, Hannah	*Madison*
Finnerud, Clark Wylie	*Watertown, S. D.*
Fiske, Seymour	*Philadelphia, Pa.*
Fitzgerald, William Norman, Jr.	*Milwaukee*
Fleming, Florence	*Madison*
Foley, Florentine	*Wauwatosa*
Foote, Evelyn Louise	*Parkersburg, Ia.*
Forster, Carl Alois	*Milwaukee*
Fox, Lucia Byrne	*Oregon*
Franklin, Newton Lucius	*Madison*
Frawley, James Robert	*Eau Claire*
Frazee, John Paul	*Rushville, Ind.*
Freeman, Ward Butler	*Norfolk, Va.*
Funsett, Harold Gurnee	*Deerfield*
Furman, Earl Francis Lovridge	*Larsen*
Gage, Bertha Marie	*Pasadena, Cal.*
Gapen, Marie Clara	*Monroe*
Gerhard, Elizabeth Seger	*Fond du Lac*
Glessow, Ruth Bertha	*Schofield*
Gleason, Inez Evangeline	*Madison*
Goodwin, Alice	*Hartland*
Graff, Will Darling	*Elkhorn*
Gram, Agnes Marie	*Milwaukee*
Grant, Gerald	*Chicago, Ill.*
Grant Robert Texow	*Madison*
Grover, Stephen Freeman	*Grantsburg*
Guequierre, Jacques Pierre	*Milwaukee*
Gullander, Magnhild Alvira	*Bristol, S. D.*
Hagerty, Bernice Icylene	*Knapp*
Hahn, Bernadette Irene	*Watertown*
Hahn, Waldo Frank	*Sturgeon Bay*
Haley, Harry Bernard	*Madison*
Hamilton, Mary Jeanette	*Berlin*
Haner, Helen Sara	*Sun Prairie*
Hart, Ray Jeffery	*Madison*

Hass, George Edward	*Reedsburg*
Hass, Melvin Herman	*Fond du Lac*
Heinrich, William Anthony	*Cedarburg*
Hemenway, Mary	*Junction City, Kan.*
Hemphill, Hazel Belle	*Madison*
Henderson, James Max	*Edgerton*
Hendricks, Gertrude Winnifred	*Madison*
Henken, Jacob Frank	*Racine*
Herrick, Roy Jefferson	*Horicon*
Herrington, Edna Truax	*Madison*
Higgins, Martin Henry Jr.	*Madison*
Hitchens, Jerilda	*Waterloo, Ia.*
Hintzmann, William Frederick	*Monroe*
Hohlfeld, Helen Minnie	*Madison*
Hohmann, John Sanders	*Oak Park, Ill.*
Holmes, Marion Anna	*Madison*
Hook, Leon Beck	*Madison*
Horchow, Joseph	*Portsmouth, O.*
Horst, Gertrude	*Elgin, Nebr.*
Horwitz, Jack	*Milwaukee*
Hsun, Swei	*Washington, D. C.*
Hughes, Margaret Mary	*Madison*
Hull, Lathrop Williams	*Oshkosh*
Jackman, Flossie Esther	*Madison*
Jackson, Arnold Stevens	*Madison*
Jackson, John Jacob	*Tomah*
Jacques, Marjorie	*Neillsville*
Janes, Arthur DeWitt	*Tomah*
Johnson, Amy Seely	*Galva, Ill.*
Johnson, Frank Etna	*Elkhart, Ind.*
Johnson, George Albert	*Cambridge*
Johnson, Marguerite Henrietta	*Washington, D. C.*
Johnson, Russell Lowell	*New Ulm, Minn.*
Johnson, Selma Johnethe	*Ellsworth*
Jolivette, Guy Alvin	*La Crosse*
Jones, Earle Burnette	*Lake Mills*
Jones, Gratia Dorothy	*Racine*
Jones, Ina Emogene	*Friendship*
Jones, Jeannette	*Columbus Grove, O.*
Jordan, Raymond Wood	*Green Bay*
Josephson, Clifford Ivar	*Moline, Ill.*
Karow, Edna Cornelia	*De Forest*
Kasten, Carl Emily	*Milwaukee*
Kayser, Vera Stein	*Madison*
Kelly, Bessie Mary	*Briggsville*
Kelly, Nettie Maud	*Madison*
Kerr, Harold Dabney	*Catonsville, Md.*
Kessenich, Elsa Kathryne	*Madison*
Ketcham, Harlie Edward	*Madison*

Kiekhoefer, Viola Meta	*Madison*
Kiley, William Earl	*Portage*
King, Kenneth Caldwell	*Whitewater*
King, Merrill Jenks	*Oak Park, Ill.*
Koepp, William	*Madison*
Kriskey, Imogene Clarissa	*Wausau*
Kusama, Acer Shiko	*Nagano Ken, Japan*
Larsen, Nellie May	*Lake Geneva*
Lassfolk, Esther	*Madison*
Lawrence, Esther Joy	*Duluth, Minn.*
Lee, Francis Knut	*Elroy,*
Legler, Fredric Mills	*Chicago, Ill.*
Leisen, Ray John	*St. Cloud, Minn.*
Leslie, Kathleen	*Verona*
Lewis, Dorothy	*Indianapolis, Ind.*
Lewis, Lillian	*Milwaukee*
Lloyd, Ashley Bond	*Madison*
Luce, Marion Ray	*Chicago, Ill.*
Luhmann, Robert Adolph	*Sheboygan*
McCabe, Raphaella Catherine	*Abbotsford*
McCarthy, Margaret Mary	*Mellen*
McFadden, Doris Lucil	*Madison*
McHugh, Glenn Eller	*Milwaukee*
McKenna, Joseph Michael	*Platteville*
Magner, Merlyn	*Duluth, Minn.*
Malone, Donald Bourke	*Beaver Dam*
Manegold, Gertrude	*Milwaukee*
Marsh, Harry Gilmore	*Waunakee*
Mathews, Madeline Eleanor	*Ashland*
Maw, Clarabel	*Madison*
Mead, Fergus	*Milwaukee*
Meland, Norman	*Red Wing, Minn.*
Mercer, Mabel Rufine	*Bowling Green, Ky.*
Merrill, Henry Baldwin	*St. Paul, Minn.*
Metcalf, Ralph Waldo	*Blandinville, Ill.*
Meuer, Helen Alma	*Madison*
Meyer, Laura Anna	*Prairie du Sac*
Miller, Harold Nelson	*St. Louis, Mo.*
Miller, Margaret	*Austin, Texas*
Mills, Laura Roe	*Buffalo, N. Y.*
Milner, Myrtle Olive	*Stanley*
Moerke, Ewald Louis	*Madison*
Moll, Arthur MacKenzie	*Kenton, Mich.*
Mollart, Gladys	*Watertown*
Montgomery, Frederick H.	*Quincy, Ill.*
Moore, Mildred Marie	*Stockton, Ill.*
Morrill, Rufus Harrison	*Madison*
Mueller, Amy Fredericka	*Madison*
Mueller, Bernard Christian	*Davenport, Ia.*
Myrland, Ruth Henrietta	*Madison*

Napiecinski, Peter Anton	*Two Rivers*
Narr, Edward Richard	*Milwaukee*
Nebel, Catherine Elizabeth	*Milwaukee*
Nichols, Lela Vanera	*Mauston*
Niss, Herman Voigt	*Milwaukee*
Noble, Thomas Benjamin	*Indianapolis, Ind.*
Nolan, Edward Paul	*Ishpheming, Mich.*
North, Reynolds Bacon	*Green Bay*
O'Malley, Stanley Thomas	*Madison*
O'Neil, Marion Eugenia	*Chippewa Falls*
Orr, Edward Burr	*St. Louis, Mo.*
O'Shea, Harriet Eastabrooks	*Madison*
Parke, Vera Janet	*Madison*
Pearson, Cecil Philip	*London, Eng.*
Peebles, Grace Elizabeth	*Oconomowoc*
Perry, Ralph Haney	*Algoma*
Petersen, Lillian Estelle	*Racine*
Peterson, Rebecca Orpha	*Madison*
Pfeiffer, Reuben Roland	*Plymouth*
Pierson, Madeline Elnora	*Spring Valley, Ill.*
Pittard, Fern Dena	*Sioux City, Ia.*
Pleuss, Anita Valentine	*Madison*
Poppe, Hannah Dorothy	*Arkdale*
Pors, William Emil	*Marshfield*
Porter, Carl Elder	*Madison, S. D.*
Potter, Howard Irving	*Baraboo*
Pradt, Louis Atwater	*Wausau*
Pratt, Don Forrester	*Madison*
Pray, Erwin Marble	*Chicago, Ill.*
Pritchard, Lucile	*East Aurora, Ill.*
Puetz, Harold Henry	*Madison*
Purvis, Muriel Pauline	*Madison*
Rawson, Harry Walker	*Plainfield*
Rhodes, Anita Jane	*Madison*
Richards, William	*Bethlehem, Pa.*
Robinson, George Clarence	*Oconomowoc*
Rockney, Anna Cecelia	*Cambridge*
Rood, James Quan	*Evanston, Ill.*
Ross, Amanda Ida	*Milwaukee*
Rounds, Cyrus Joseph	*Eau Claire*
Ryser, Lyda Marie	*Appleton*
Sanborn, Philip Golder	*Madison*
Sanders, Hazel Alvilda	*Madison*
Sanderson, Charles Harrison	*Madison*
Sanderson, Irene Isabelle	*Madison*
Sayle, George William	*Madison*
Schaffer, Fred Byron	*Kansas City, Mo.*
Schappa, Gladys Wilcox	*Madison*
Scheuber, Frank Adolph	*Livingston, Mont.*
Schlossmann, Bernard	*Waukesha*

Schneider, Chester Clayton	*Milwaukee*
Schneider, Elsie Elizabeth	*Madison*
Severinghaus, Aura Edward	*Toledo, O.*
Severinghaus, Elmer Louis	*New Albany, Ind.*
Seymour, Leland	*Peshtigo*
Shaffer, Nellie Lucille	*New Hampton, Ia.*
Sharkey, Edith Lucille	*Chicago, Ill.*
Shearer, Harry Arthur	*Fennimore*
Shepherd, Louise	*Madison*
Simmons, Horace Davis	*Milwaukee*
Skavlem, John Harvey	*Stoughton*
Smith, Alma Edith	*Milwaukee*
Smith, Charlotte Estelle	*Chicago, Ill.*
Smith, Georgia Isabel	*Racine*
Smith, Helen Gertrude	*La Crosse*
Smith, Lester Hoyt	*Port Washington*
Spiering, Lillie Luise	*Mayville*
Spohn, Daniel M.	*Goshen, Ind.*
Stang, Hartwick Martinus	*Eau Claire*
Stavrum, Edwin Richard	*La Crosse*
Stephens, Stephen DeWitt	*Madison*
Stephenson, Verne Lindsay	*South Bend, Ind.*
Stewart, Katherine Bernice	*Madison*
Stone, Ralph William	*Madison*
Strickland, William Kimball	*Superior*
Stromme, Laura	*Madison*
Sturdevant, Imogen	*Lyndon, Ill.*
Sullivan, Eugene Shaw	*Madison*
Sully, Vera Brown	*Spirit Lake, Ia.*
Sutherland, Bessie Irene	*Eau Claire*
Swanton, Milo Kendell	*Madison*
Tabler, Frank Henry	*Morris, Ill.*
Taylor, Joseph Vincent	*Marple, Neb.*
Taylor, Sarah Jane	*Two Rivers*
Thompson, Fred Rush	*Cedarsville, Ill.*
Thorpe, Dorothy Ollivette	*Green Bay*
Toepelmann, Walter Carl	*Madison*
Toerne von, Emma Augusta Marie Lucie	*Ft. Atkinson*
Tolhurst, Hope	*Pittsfield, Mass.*
Toomey, Mildred Virginia	*Deer Lodge, Mont.*
Tsao, John Chuan-mon	*Kwong-Chow, China*
Wade, Margaret Moore	*Muscoda*
Wahle, George Henry	*Marshfield*
Walker, Victor Elmer	*Delavan*
Ward, Frances Lanore	*Minneapolis, Minn.*
Webb, Irene Haley	*Plymouth*
Wheeler, Crawford	*Eau Claire*
White, Charles Leland	*Louisville, Ky.*
White, Webb Bogart	*Humboldt, Ia.*
Wickham, James Arthur	*Eau Claire*

Wilson, Anna Elizabeth	*Brookings, S. D.*
Winter, John Harold	*Green Bay*
Wise, Merton Barber	*Rothschild*
Wittwer, Elgia Lelia	*Madison*
Wollaeger, Erich Christopher	*Milwaukee*
Wood, Henrietta Holmes	*Madison*
Wooll, Gerald Kelley	*Janesville*
Wootton, Elizabeth Gage	*Madison*
Wright, Katharine Marcia	*Forest Glen, Md.*
Wyman, Florence	*Sidney, O.*
Yeager, Susan Amelia	*Darlington*
Young, Isabel Helen	*Madison*
Zilisch, Oscar Carl	*Watertown*
Zillmer, Helen Jane	*Milwaukee*
Zwemer, Richard Adrian	*Madison*

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Course in Commerce

Ambler, Frank Irving	*Endeavor*
Ambler, Harold Holman	*La Grange, Ill.*
Barton, Maurice L.	*Albany*
Bellows, Harry Alvin	*Beloit*
Benedict, Harry Ellis	*Neillsville*
Billings, Eugene Douglass	*Cobb*
Bliss, Marcia Grace	*Sharon*
Boguslawsky, Hugo	*Milwaukee*
Brown, Lehm Lincoln	*Madison*
Burmeister, Roy Frederick	*Gratiot*
Butterbaugh, Grant Illion	*Grand Rapids*
Carder, Nelva John Henry	*Madison*
Casserly, Charles Bartholomew	*Madison*
Chickering, Alfred Dorance	*New London*
Clarke, Lyle C.	*Baraboo*
Clifford, William Foster	*Evansville, Ind.*
Coleman, Clement John	*Milwaukee*
Conover, Harvey	*Hinsdale, Ill.*
Davidson, Kenneth Wilde	*Oshkosh*
Dietz, Delmar Louis	*Horicon*
Donkle, Shelburn Orville	*Fort Atkinson*
Eggebrecht, Oscar Ott	*Wausau*
Fellows, Donald Ross Hotchkiss	*Decatur, Ill.*
Findorff, Milton Brewer	*Madison*
Friedman, Morton J.	*Scofield, S. D.*
Froehlich, Armand Lampfrom	*Milwaukee*
Garling, Richard Henry	*Mayville*
Gilbert, Charles Scriver	*Wausau*
Halsted, James Ellinwood	*Baraboo*
Hammel, Rachel	*Appleton*
Hayssen, Carl Goeres	*Milwaukee*
Henry, Charles Lloyd	*Michigan City, Ind.*

Herrold, Lloyd Dallas	*Madison*
Hoeveler, Theodore Anthony	*Madison*
Hogan, Clark Harvey	*Oklahoma City, Okla.*
Holm, George Samuel	*Elkhorn*
Imhoff, Thomas Hunt	*Hopewell, N. J.*
Jones, Francis Alexander	*Grand Rapids*
Kimball, Archie William	*Briggsville*
Knapstein, Theodore Michael	*New London*
Kotenberg, Herbert Reinhart	*Waupun*
Kucheman, Marco Roy	*Bellevue, Ia.*
Laughlin, John Lee	*Antigo*
Leslie, Robert Wilson	*Antigo*
Levis, George Winden	*Madison*
Lindemann, Oscar Edward	*Milwaukee*
Link, Othmar Charles	*Madison*
Lynch, Joseph Lawrence	*Blue Mounds*
McCoy, Frank Adelbert	*Tonawanda, N. Y.*
McGowan, Murray Sanborn	*Madison*
Mahler, Herbert Phillip	*Milwaukee*
Marsh, Samuel Alpheus	*New London*
Matthews, Auston Rice	*Madison*
Mertzke, Arthur John	*North Freedom*
Meyer, Albert Friend	*Dubuque, Ia.*
Miller, Arthur William	*Eau Claire*
Minster, Earl Weston	*South Milwaukee*
Morrill, Rufus Harrison	*Madison*
Morris, Frank Sloan	*Des Moines, Ia.*
Popoff, Lincoln Minko	*Richmond, Ind.*
Ramsdell, Glenn Lewis	*Wausau*
Reber, Harry D.	*Milwaukee*
Ross, William Ernest	*Madison*
Ruder, George Louis	*Wausau*
Rumpf, Fritz William	*Stamford, Conn.*
Schmidt, Roy Hugo	*Davenport, Ia.*
Shapiro, Nathan	*Medford*
Smith, Howard Leaman	*Madison*
Smith, Lynwood Herbert	*Kansas City, Mo.*
Soelch, George Fred	*Madison*
Spencer, Charles Elliott	*River Forest, Ill.*
Stout, Kenneth Vinson	*Cedar Lake*
Taylor, Russell Fayette	*Whitewater*
Tilleson, Selmer J.	*Colfax*
Trumpf, Erwin Clarence	*Madison*
Van Auken, Howard Myron	*Des Moines, Ia.*
Van Liere, Edward Jerald	*Bristol*
Voss, Edward Fritz	*Davenport, Ia.*
Walsh, Dana W. Wykoff	*Washburn*
Watzke, Louis August	*Madison*
White, Edward Ora	*Pocatello, Idaho*
Williams, Clifford Earl	*Portage*

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Course in Chemistry

Bosworth, Lloyd Athel	*Geneva, N. Y.*	
Conover, Charles Sydney	*Orion, Ill.*	
Davis, Luther Cochran	*Fairmont, W. Va.*	
Duemling, Gerhard Wilhelm	*Milwaukee*	
Gifford, Maurice Stoddard	*Genoa Junction*	
Glaspell, Dean Watson	*Evanston, Ill.*	
Graewin, Robert August Charles	*Tomah*	
Johnson, Alfred Julius	*Stanley*	
Kahlow, Thomas Jefferson	*Milwaukee*	
Klein, John Edmond	*Louisville, Ky.*	
McGrath, Norma	*Gary, Ind.*	
McHenry, Alan Thurman	*Milwaukee*	
Richardson, Marston Samuel	*Kansas City, Mo.*	
Robertson, Scott Loomis	*Fort Collins, Colo.*	
Rude, Theodore Alfred	*Washburn*	
Schilling, Fred Carl	*Horicon*	
Sproesser, William Charles	*Milwaukee*	
Stephl, John Frank	*La Crosse*	—18

Course in Journalism

Ballard, Rex Jonathan	*Findlay, O.*	
Barlow, Reuel Richard	*Monticello*	
Birkelund, Oda	*Park Ridge, Ill.*	
Burke, Joseph William	*Centuria*	
Collver, Julius Penney	*Rockford, Ill.*	
Crosser, Callender Armstrong	*East Aurora, N. Y.*	
Culnan, John Herbert	*Marinette*	
Distelhorst, Fred Martin	*Dorchester*	
Guetzloe, Lester Clyde	*Kiel*	
Halperin, Victor Hugo	*Chicago, Ill.*	
Neuenschwander, Adolph Herman	*Athens*	
Neuenschwander, Edward John	*Athens*	
Pittenger, Edward Mills	*Madison*	
Prussing, Arthur William	*Chicago, Ill.*	
Quirt, Harold W.	*Peshtigo*	
Rech, William Athniel	*Kiel*	
Reedy, William Burke	*Chicago, Ill.*	
Trezise, Harry Lewis	*Ironwood, Mich.*	
Trill, Mathew Henry	*Madison*	
Williams, Ray E.	*Dodgeville*	
Zache, Alex Frank	*Franksville*	—21

FRESHMEN

Adams, Marjorie Mae	*Chicago, Ill.*
Albright, Raymond William	*Milwaukee*
Alexander, Ben	*Wausau*
Allanson, Gerald Richard	*Milwaukee*
Allen, Girard	*Wichita, Kas.*
Amos, George Merle	*Fairmont, W. Va.*
Andres, Paul Hall	*Memphis, Mo.*
Andrews, Joy Ella	*Portage*
Andrews, Stella Malitta	*Madison*
Aney, Melvin Carl	*Norwalk*
Anson, Barry Joseph	*Muscatine, Ia.*
Antes, Herbert Pullen	*Des Moines, Ia.*
Appleby, William Light	*Madison*
Arzberger, Cornelius Fred	*Helenville*
Ashby, Mary Alice	*Indianapolis, Ind.*
Ausman, Glayds Magdalena	*Eau Claire*
Austin, Marjorie Lucia	*Sterling, Ill.*
Axley, Harold	*Cleveland*
Bacon, Frances Fairchild	*Madison*
Bancroft, Blaine Delof	*Richland Center*
Barker, Robert Isaac	*Oconomowoc*
Barneby, Ethel Edessa	*Cairo, Neb.*
Barnes, John, Jr.	*Madison*
Barr, Helen Adeline	*Oak Park, Ill.*
Baumann, Adolf Otto	*Kiel*
Baumblatt, Leonard Philip	*Racine*
Beatty, Mary Elizabeth	*Davenport, Ia.*
Bebb, Alice Kathryn	*Nevada, Ia.*
Beck, Arnold Joel	*Arcadia*
Bennett, Ralph Charles	*Cassville*
Benton, Joseph Levi	*Richland Center*
Bergen, Lloyd Vanderveer	*Highland Park, Ill.*
Bergum, Belle Regina	*Madison*
Black, Guy	*Fort Atkinson*
Blau, Clara Marie	*Spring Green*
Blied, Leo John	*Madison*
Blodgett, Donald John	*Lake Geneva*
Blum, Fred Gabriel	*Monticello*
Boelte, Leda Henrietta	*Columbus*
Boll, Helen Flanders	*Rice Lake*
Bond, Edith Lorraine	*Madison*
Brendemuehl, Alvin Gottfried	*Watertown*
Brewer, Fred French	*Menomonie*
Broadfoot, Hibbard Elverton	*Mondovi*
Brown, Christine Etna	*Urbana, O.*
Brown, Lee Peter	*Chicago, Ill.*
Brown, Lela	*Hailey, Idaho*

Brown, Louise Caroline	*La Crosse*
Brown, Marjorie Fredericka	*Madison*
Brown, William Walker	*Marinette*
Brunsell, Alma Petronele	*Evansville*
Buckley, Harold Joseph	*Washington, Ia.*
Bullwinkel, Julia Elizabeth	*Jefferson*
Bunn, Bertha Kellett	*Spokane, Wash.*
Burke, Mead	*Chicago, Ill.*
Burns, Robert Emmett	*Grand Rapids*
Burnson, Ingvard Benjamin	*De Forest*
Burt, William Raymond	*Laurium, Mich.*
Burwell, Marjorie	*Madison*
Byers, Dow Jackson	*Des Moines, Ia.*
Cairns, William Bateman	*Madison*
Calvert, Jacob Grafius	*Jersey Shore, Pa.*
Carey, Arthur Francis	*Madison*
Cargill, George MacMillan	*Madison*
Carlson, Charles Gordon	*Ishpeming, Mich.*
Carlton, Marjorie Frances	*Laurium, Mich.*
Casserly, Henry Lawrence	*Madison*
Chapman, Edmund Sewall	*Lake Geneva*
Chase, Ruth Wayland	*Madison*
Childs, Marshall Howard	*Eau Claire*
Claflin, Donald Myron	*Milwaukee*
Clark, Dorothy Elizabeth	*Cincinnati, O.*
Clark, Edmund David	*Algoma, Ia.*
Clark, John Lindsay	*Steubenville, O.*
Comstock, Susan	*La Grange, Ill.*
Conrad, Bradley Barker	*Janesville*
Cook, Harriet Irene	*Des Plaines, Ill.*
Cook, Irene Croxton	*Bluffton, Ind.*
Cooley, John Wesley	*Madison*
Coon, Paul Henry	*Madison*
Coville, Katharine	*Washington, D. C.*
Cummings, Raymond Henry	*St. Louis, Mo.*
Dahl, Victor	*Westby*
Davies, Anna Eliza	*Racine*
Davis, Marguerite Vivian	*Williams Bay*
Davis, Martha Ella	*Huron, S. D.*
Dawson, Dorothy Ware	*Waverly, Ia.*
Day, Florence Evelyn	*Lake Geneva*
Day, Florence Hodson	*Hartford*
Degner, Herbert Otto	*Athens*
Delamater, Vincent Leroy	*Cambridge*
Demmler, George Gustave	*Eau Claire*
Deutsch, Margaret Wilhelmina Theresa	*Milwaukee*
Dewey, Verna Anna	*Middleton*
Dillman, Mary Cecelia	*Randolph*
Dixon, Donald Pendleton	*Madison*
Dobie, Jessie Murray	*Madison*

Donaldson, Emily Lucile	*Racine*
Doney, Barbara	*Waupun*
Dove, John Fitch	*Madison*
Dow, Freda Nell	*Madison*
Drowatzky, Bernard Harvey	*Tomah*
Dunkel, Elmer Solomon	*Phillips*
Dunton, Mary Olive	*Sycamore, Ill.*
Eastman, Mary Eleanor	*South Bend, Ind.*
Ebbert, Georgia Grosvenor	*Chicago, Ill.*
Eddy, Elizabeth McKee	*Hot Springs, Ark.*
Edwards, Theodore Eugene	*La Crosse*
Egan, Ellen Winifred	*Shullsburg*
Egge, Ruth March	*Webster, S. D.*
Eggert, Bernice Juanita	*Grand Rapids*
Ehrhardt, Fannie	*Beardstown, Ill.*
Ellis, Mabel Evangeline	*Madison*
Ellis, Robert Charles	*Madison*
Ellman, Florence Jeanette	*Madison*
Ely, John Thomas Anderson	*Madison*
Emery, Myra Teel	*Madison*
Emmel, Le Roy Lloyd	*Madison*
Ernst, Norman Conrad	*Chicago, Ill.*
Evans, Milan Moessner	*Madison*
Fadden, James Bernard	*Madison*
Fauerbach, Louis Jr.	*Madison*
Fay, Margaret Virginia	*Madison*
Feinberg, Samuel Morris	*Watertown*
Felten, Clarence Bernard	*Milwaukee*
Felten, Hilbert Oscar	*Milwaukee*
Fenelon, Eunice Sarah	*Weyauwega*
Fernald, Edith May	*Madison*
Finnegan, Gilbert Patrick	*Eveleth, Minn.*
Fischer, Roy Fred	*Lancaster*
Fisher, Grace Genevieve	*Baraboo*
Fosgate, Frank Pilling	*Richland Center*
Foster, Gretchen Malina	*Branton*
Foster, Henry Norton	*Coalton, Ky.*
Fox, Blanche Irene	*Madison*
Fox, Osmon Charles	*Madison*
Franklin, Lucy Westfall	*Rankin, Ill.*
Franks, Norvin Harry	*Chicago, Ill.*
Frederickson, Edna Virginia	*Madison*
Freer, Norman Bradford	*Hinsdale, Ill.*
Fricke, Zura	*Madison*
Frish, Ruth Mary	*Madison*
Fritsche, William Henry	*New Ulm, Minn.*
Gafke, Irene Barbara	*Belleville*
Gallagher, Frederick Carlisle	*Caro, Mich.*
Garibaldi, Francis Christopher	*Chicago, Ill.*
Garibaldi, John George	*Chicago, Ill.*

Gaukel, George John	*Sauk City*
Gault, Elizabeth Collins	*Portage*
Gavin, Arthur	*Ashland*
Gevers, Carl Montague	*Racine*
Gilbertson, Victor Gilbert	*Eau Claire*
Gillett, Alden Cherry	*Eau Claire*
Glassner, Esther Miriam	*Milwaukee*
Glos, Walter Adam	*Elmhurst, Ill.*
Good, Samuel Pulse	*Warren, Ind.*
Gooding, Lawrence Earl	*Fond du Lac*
Gorham, Dean Bartlett	*Decatur, Ill.*
Gould, Etta	*Bemidji, Minn.*
Grant, James Evert	*Pierre, S. D.*
Grattelo, Herbert Ernest	*Freeport, Ill.*
Green, Harriet Birchard	*Chicago, Ill.*
Greene, Marjorie	*Prophetstown, Ill.*
Grenoble, Edna May	*Madison*
Griswold, Grace Mary	*Sheboygan*
Griswold, Katherine Parker	*West Salem*
Grobe, Dalos Harry	*Menomonie*
Guinzius, G. Bernard	*Green Bay*
Gurney, Carrie Louise	*Madison*
Gurney, Ellen Anna	*Madison*
Hagopian, Bedros	*Madison*
Hall, Earl Hopkins	*Oconto*
Halls, John Eddy	*Beloit*
Hamilton, Florence Irene	*Tomah*
Hannon, Leo John	*Sturgeon Bay*
Hansen, Sadie Esther	*Williams Bay*
Hanson, Alma Christine	*Eau Claire*
Harloff, Rose Alice	*Madison*
Hart, Dorothy	*Madison*
Hay, Katherine Helen	*Dubuque, Ia.*
Hayden, Camilla Margaret	*Madison*
Hayes, Charles Addison	*Chippewa Falls*
Hayward, Laura Mae	*Peebles*
Heimerl, Arthur William	*Madison*
Helmes, Dorothy Alma	*St. Paul, Minn.*
Hendricks, Wilbert Christian	*Tomah*
Henry, Mary Ette	*Reedsburg*
Herbert, Mary Kennerly	*Cincinnati, O.*
Hesse, Lester William	*Milwaukee*
Higbie, Harley Green	*Chicago, Ill.*
Higgins, John Stanley	*Huron, S. D.*
Higson, Francis Delmar	*Helena, Mont.*
Hildreth, Richard Prescott	*Wheeling, W. Va.*
Hodges, Fred Jenner	*Ashland*
Hodgson, Harold	*Waukesha*
Hodgson, Herbert Edwin	*Bisbee, Ariz.*
Hoffmann, Nicholas Joseph	*Belgium*
Holahan, Gretta Fenelon	*Madison*

Holden, Mary Elizabeth	*Chicago, Ill.*
Holley, Mary Loraine	*Antigo*
Holmes, Lenore	*Baldwin*
Holmes, Lincoln Charles	*Clear Lake*
Hood, Arch John	*Milwaukee*
Houtz, Edward Lyman	*Helena, Mont.*
Huber, Ernest Emil	*Blackwater, Mo.*
Huber, Kate D.	*Frankfort, Ind.*
Hudson, Mary Harlow	*Madison*
Hughes, Thomas Joseph	*New Richmond*
Hughes, Stuart Wilson	*Madison*
Hull, Helen Claire	*Madison*
Hull, Juliette De Veau	*Naugatuck, Conn.*
Hunt, Douglas Eugene	*Wautoma*
Hunt, Margaret	*Madison*
Huntzicker, Paul	*Grenwood*
Hyslop, Robert James	*Cazenovia*
Isenberg, Estella Helena	*Baraboo*
Jacobsen, Esther Helena	*Madison*
James, Robert Grant	*Louisville, Ky.*
Jameson, Raymond Deloy	*Toledo, O.*
Jansky, Cyril Moreau	*Madison*
Jenison, Marguerite Edith	*Fond du Lac*
Jenkins, George Harry, Jr.	*Chicago, Ill.*
Jennings, Irene Hawley	*Grand Rapids*
Jensen, Esther Andrea	*Racine*
Jobson, Edward Russell	*La Grange, Ill.*
Johnson, Genevieve Catherine	*Madison*
Johnson, Gertrude Kildohl	*Los Angeles, Cal.*
Johnson, Waldemar Hiram	*Rhinelander*
Jones, Morris Emery	*Madison*
Jones, Silas Lloyd	*Warren, Ind.*
Kahn, Nathan Lee	*Milwaukee*
Kayser, Susan Elizabeth	*Des Plaines, Ill.*
Kehl, Sylvester Carl	*Madison*
Keller, Robert Joseph	*Baraboo*
Kelly, Harry Richmond	*Toledo, O.*
Kemmer, Frank Leonard	*Brooklyn, N Y.*
Kennedy, Ruth Eleanor	*Merrill*
Kentzler, Ruth Purdy	*Madison*
Kershner, Jesse King	*Concordia, Kansas*
Ketcham, Iva Modene	*Madison*
King, Walter Melvin	*Altoona*
Klontz, Vernon Earl	*Freeport, Ill.*
Knickel, Walter Clayton	*Campbellsport*
Knowlton, Helen Sheldon	*Madison*
Knowlton, Margaret Roper	*Madison*
Koehler, Lilly Minnie	*Menomonee Falls*
Koepp, Otto	*Madison*
Krause, Rosa Laura	*South Bend, Ind.*

Kremers, Elsa	*Madison*
Krohn, Carl Arthur	*Marinette*
Krohn, Victor Eugene	*Black River Falls*
Kuehl, Helen	*Eau Claire*
Laemle, Leah Florence	*Marshfield*
La Follette, Robert Marion Jr.	*Washington, D. C.*
Lambert, Wilbur	*Memphis, Tenn.*
Lange, Eleanor Ann	*Cedarburg*
Langer, Harold Myron	*Waterloo*
Lapham, Frank Willard	*Lake Beulah*
Lathrop, Francis Child	*Madison*
Laue, Charlotte Margaret	*Alma*
Leary, Julia Lenore	*Madison*
Lebowsky, Charles Adolph	*Milwaukee*
Leeming, Frank Charles	*Chicago, Ill.*
Lenienkugel, Jacob Matt	*Chippewa Falls*
Lenz, Edwin Robert	*Wausau*
Levenhagen, Erving John	*Two Rivers*
Levy, Leo Nathan	*Milwaukee*
Lewis, Florence Elizabeth	*Madison*
Lewis, John Ralph	*Davenport, Ia.*
Linden, Eleanor Ruth	*Hayward*
Linley, Robert Wilson	*Atchison, Kansas*
Linwell, Emmons Victor	*Northwood, N. D.*
Littig, Esther Eugenia	*Flandreau, So. Dak.*
Lounsbury, Helen Irene	*Madison*
Love, Livingston Johnson	*Joplin, Mo.*
Lovett, William Winthrop	*Chicago, Ill.*
Loy, Georgia Adeline	*Chicago, Ill.*
Lucas, Lefa B.	*Peshtigo*
Luebchow, Erwin Otto	*Wausau*
McCarthy, Blanche Marie	*Madison*
McCormick, Laura A.	*Waterloo*
McCrory, Raymond John	*Milwaukee*
McCulloch, Lucien Vernon	*Madison*
McCollom, Edgar De Bolt	*Rice Lake*
McGillivary, John Angus	*Chippewa Falls*
McGovern, Frances Stow	*Cedarburg*
McMillan, Carol	*Chicago, Ill.*
McNeil, John Edward	*Aniwa*
McNulty, Mary Agatha	*Spring Green*
Macklin, Miriam Athelene	*Madison*
Maher, John Wallace Jr.	*Devils Lake, N. D.*
Manzella, Antonio	*Milwaukee*
March, James Herbert	*Warren, O.*
Marquardt, Julius Charles	*La Crosse*
Martin, Hazel Isabelle	*Madison*
Martin, Roland Rosco	*Green Bay*
Meloche, Villiers Willson	*Madison*
Metcalf, Lethe Viola	*Spring Green*

Middleton, Forest Case	*Madison*
Millar, Helen Rachel	*Lake Geneva*
Miller, Myrtle	*West Salem*
Miller, Sidney Fred	*Helena, Mont.*
Millin, La Vern George	*Glen Haven*
Moehlman, Lillian Susan	*Madison*
Mooney, Charles Roger	*Brodhead*
Moore, Virgil Leven	*Big Timber, Mont.*
Morris, Edith Irene	*Oshkosh*
Morris, Kathryn	*Madison*
Morris, Meade McKinley	*Madison*
Morsell, Mary Pendleton	*Milwaukee*
Morton, Charles Delos	*Chicago, Ill.*
Moser, Clara Pauline	*Elgin, Ill.*
Mullon, Edward Albert	*Madison*
Munro, Caroline Walker	*Madison*
Myer, Retha Black	*Kingman, Ind.*
Mygrant, Ethel Marie	*Markle, Ind.*
Nelson, Clara Anna	*Black Creek*
Nelson, Harvey Frans	*Omaha, Nebr.*
Nelson, Theodora Chase	*New Brunswick, N. J.*
Nelson, Wilford Mariam	*Heroutt, Cal.*
Newett, Marie Evelyn	*Ishpeming, Mich.*
Newman, Irene Mary	*Madison*
Nicely, Ruth Sarah	*South Bend, Ind.*
Nicoll, Edward William	*Kenosha*
O'Brien, Leo Patrick	*Fond du Lac*
Olsen, Harold Goodwin	*Rice Lake*
Olson, Henry John	*Beloit*
O'Neil, Catherine Eleanor	*Chippewa Falls*
O'Neil, Frederick Albert	*Milwaukee*
Onsrud, Clarence Adolph	*Stoughton*
Orton, Claribel Elizabeth	*Marietta, Minn.*
Oskamp, Alfred Stuart	*Wyoming, O.*
Ostrander, Mary Evaline	*Columbus*
Owen, Jay Caton	*Plainfield*
Palmer, Ellridge	*Paducah, Ky.*
Palmer, Gladys Evelyn	*Oak Park, Ill.*
Park, Lyman Barnes	*Stevens Point*
Patton, John Vevers	*Chicago, Ill.*
Payton, James Martin Anthony	*Madison*
Pease, Warren, Jr.	*Kenilworth, Ill.*
Pederson, Wilhelmina Mildred	*Strum*
Pelton, Glenn Edwin	*Oshkosh*
Penhallegon, Mary Genevieve	*Mineral Point*
Penningroth, Benjamin Gottlieb	*Tipton, Ia.*
Phillips, Harold Edward	*Chicago, Ill.*
Piehl, Gunard Alfred	*Williams Bay*
Pierce, Gladys Marie	*Brodhead*
Poe, George Arthur	*Cleveland, Ohio*

Pontius, Thomas Thornburg	*Columbia City, Ind.*
Poppy, Clarence Harry	*Crandon*
Powell, Henry Miller	*Reedsburg*
Powell, Luella Clara	*Freeport, Ill.*
Preston, Helen Marguerite	*Winona, Minn.*
Priddy, Wellborn Saxon	*Chicago, Ill.*
Putnam, Dorothy	*Joplin, Mo.*
Quirt, Cecil Rae	*Peshtigo*
Quirt, Howard Arthur	*Peshtigo*
Rainey, Edward Carlysle	*Lindsay, Mont.*
Ramsay, Eleanore	*Madison*
Ramsey, Madeline Eva	*Chicago, Ill.*
Randall, Otis Laurence	*Oak Park, Ill.*
Rasmussen, Vilas Lenor	*Oconomowoc*
Reckmeyer, Victor	*Milwaukee*
Reese, Gordon Beaman	*Milford, N. H.*
Rehfeld, Frances Eugenia Hiles	*Milwaukee*
Reichert, John Lester	*West Bend*
Reinke, Walter Ernest	*Marinette*
Reynolds, Helen Elizabeth	*Jacksonport*
Richardson, Chester Dee	*Walworth*
Richdorf, Lawrence Francis	*Maribel*
Riordan, Helen Blanche	*Howard*
Rivers, Thomas Ellis	*Meridian*
Roantree, Robert Peter	*Parker, S. D.*
Robertson, Ruth Elizabeth	*Indianapolis, Ind.*
Robinson, Arthur Harrison	*Madison*
Roder, Esther Carolyn	*Madison*
Rodigan, Mary Virginia	*Racine*
Rohde, Hulda Emilia	*Estherville, Ia.*
Rosenquest, Russell Churchill	*Eau Claire*
Roult, David	*Milwaukee*
Rowe, Agnes Henrietta	*Houghton, Mich.*
Russell, Cecil Macauly	*Eau Claire*
Ryan, Mark Edward	*Oconomowoc*
Salzer, Kenneth Earl	*La Crosse*
Samuel, Ida Hermoine	*Racine*
Sayles, John Raymond	*Bayfield*
Schardt, Arlie Alfred	*Milwaukee*
Schmidt, Elsa Wilhelmina	*Marshfield*
Schmidt, Karl August	*Wausau*
Schneider, Ernest Leo	*Bruce*
Schrader, Ilse Josephine	*St. Paul, Minn.*
Seibold, Fred Carl	*Camp Douglas*
Seids, James Vane	*Moline, Ill.*
Seiler, Margaret Madeline	*Madison*
Sennett, Margaret Catherine	*Madison*
Service, George Lorenz	*Mishawaka, Ind.*
Settle, Edward J.	*Bozeman, Mont.*
Shackleton, Florence Gaile	*Black Earth*

Sheakley, Elenor Mary	*Chicago, Ill.*
Sherman, Ivan Ashley	*Marshall*
Shugrue, Margaret Genevieve	*Chicago, Ill.*
Shuttleworth, Farrand Dames	*Madison*
Siddons, Frederick Philip Heyward	*Washington, D. C.*
Simon, Violet Mildred	*Ida Grove, Ia.*
Slichter, Louis Byrne	*Madison*
Slocumb, Ira Otis	*Neillsville*
Smith, Katherine Loretto	*Spring Green*
Smith, Matthew Mann	*Madison*
Smith, Maxwell Austin	*Madison*
Smith, Milton Flick	*Green Bay*
Solberg, Victor	*Eau Claire*
Spicer, Myrle Harrison	*Pardeeville*
Stadelbauer, Fred Walter	*Munich, Bavaria, Germany*
Stafford, Lloyd Holbrook	*Madison*
Staidl, Slevi Anton	*Shawano*
Starry, Leo Joseph	*Dodgeville*
Staufenbeil, Evelyn Matilda	*Dubuque, Ia.*
Steffen, Glyndon Francis	*Antigo*
Stewart, Lucile	*Toledo, Ohio*
Sukeforth, Howard Arthur	*Duluth, Minn.*
Sullivan, John Mansfield	*Fort Dodge, Ia.*
Sweet, Helen Fern	*St. Joseph, Mich.*
Swerig, Vivian Pearl	*Madison*
Swingle, Ruth Mable	*Muscoda*
Tabor, Lee Lewis, Jr.	*Chicago, Ill.*
Taylor, Eloise	*Greenville, Miss.*
Taylor, Paul Schuster	*Sioux City, Ia.*
Thompson, Nora Julia	*Grand Rapids, Mich.*
Tillotson, Ruth Amelia	*Madison*
Tomasek, Anthony Thomas	*St. Paul, Minn.*
Trainor, Mabel	*Greenville, O.*
Trebilcock, Arthur Francis	*Mineral Point*
Truitt, John William	*Naperville, Ill.*
Tuller, Cass Carlene	*Morrison, Ill.*
Tusler, Frank Harold	*St. Paul, Minn.*
Tyrrell, Gladys Dorothy	*Madison*
Van Ostrand, A. Mortimer	*Antigo*
Walker, Margaret Jane	*Anaconda, Mont.*
Wall, John Irvin	*Antigo*
Warner, Robert Leman	*Dixon, Ill.*
Warren, Anna Lucille	*Baraboo*
Wattawa, Esther Wilhelmine	*Madison*
Weck, Charles Whitney	*Slayton, Minn.*
Weller, Charles Grafton	*Fond du Lac*
Wells, Alberta May	*Denver, Colo.*
Wengler, Harold	*Madison*
Werner, Walter Albert Robert	*Friendship*
Wessel, Iona Johane	*Middleton*

Westcott, May Kendall	*Baltimore, Md.*
Wheeler, Sylvester Lawrence	*Wauwatosa*
Whelan, William Miller	*Mondovi*
Whitchere, Marq Hall	*Pierre, S. D.*
Whitman, James Lee	*Kaukauna*
Wiebrecht, Albert	*La Crosse*
Wiehl, Dorothy Gerard	*St. Joseph, Mo.*
Wilde, Edwin	*Milwaukee*
Willcox, Faith Elizabeth	*Mt. Vernon, N. Y.*
Williams, Abram P.	*New Richmond*
Williams, Franklin Charles	*Milwaukee*
Williams, Virginia Baird	*Madison*
Williston, Horace Hays	*Billings, Mont.*
Wilson, Marguerite Elizabeth	*Madison*
Wolcott, Roger Gilbert	*Rockford, Ill.*
Wood, Beatrice Lanore	*Hancock*
Wood, Ralph Hereld	*Hancock*
Woolf, Irving Walter	*Chicago, Ill.*
Wright, John Jesse	*Antigo*
Yabroff, Rose	*Fond du Lac*
Yahn, George William Jr.	*Janesville*
Young, Robert Archer	*Madison*
Younker, Helen Hedwig	*Des Moines, Ia.*
Zeisig, Edward	*Milwaukee*
Zellmer, Carl Edward	*Antigo*
Zick, William John	*Sauk City*
Zischke, Herman Albert	*Horicon*

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Course in Commerce

Auby, Leonard James	*Deerfield*
Bailie, Arthur Ray	*Lancaster*
Barrett, Alphonso	*Wenona, Ill.*
Belsky, Max Benard	*Dubuque, Ia.*
Bird, George Eaton	*Wausau*
Blodgett, Guy Erastus	*Marshfield*
Boldt, Arnold John	*Davenport, Ia.*
Brand, Warner Holmes	*Chicago, Ill.*
Brann, Lester William	*Bailey's Harbor*
Brooks, Dudley Cookingham	*Victor, N. Y.*
Brown, Lee Markham	*St. Louis, Mo.*
Brown, Spencer	*Rhinelander*
Buckley, Glenn Foster	*Clinton*
Burch, Kendall	*Dubuque, Ia.*
Burrell, Roger Allen	*Chouteau, Mont.*
Buser, Earl Jones	*Madison*
Camp, Edwin Warren	*Clinton, Ia.*
Campen, George Dennis	*Eau Claire*
Carrell, Ross Marmon	*Des Moines, Ia.*
Chandler, Arthur Luther	*Madison*

Chesick, Guy Sidney	*So. Milwaukee*
Childe, John Pollock	*Wyoming, O.*
Clark, James George, Jr.	*Oshkosh*
Clasmann, Fred	*Milwaukee*
Collins, Cornelius Harold	*Madison*
Connor, Eugene Peter	*Madison*
Conover, Julian Darst	*Madison*
Cost, Arlington Boone	*Hagerstown, Md.*
Crane, William Hanlon	*Chicago, Ill.*
Dahle, Ralph Biorn	*Mt. Horeb*
Davis, David Benjamin	*Arcadia*
Denfeld, George August	*Wausau*
Dickson, Wilbur George	*Two Rivers*
Docken, Clarence Oliver	*Mt. Horeb*
Donnelly, James Stuart	*Appleton*
Donovon, James Rowells	*Waupun*
Dumesnil, Edward Rowland	*Louisville, Ky.*
Easson, Graeme Sanford	*Spokane, Wash.*
Eckert, Wilbur Duane	*Woodstock, Ill.*
Elam, Grover	*Dodgeville*
Emerson, Warren Eugene	*Sun Prairie*
Engelhard, Victor Henry, Jr.	*Louisville, Ky.*
Evans, Thomas Iorwerth	*Spokane, Wash.*
Farley, Donald Stephen	*Madison*
Farrand, Jack Easton	*Fargo, N. D.*
Fellman, Judson Le Roy	*Milwaukee*
Ferguson, William Friend	*Madison*
Fraker, Walter Porter	*Duluth, Minn.*
Frank, Walter Reuss	*Milwaukee*
Friedberg, Joseph	*Milwaukee*
Frisbie, Chauncy Osborn	*Cornell*
Gardner, Milton Leroy	*Ashland*
Garner, Lloyd Milton	*Madison*
Garrigan, George Arthur	*Beloit*
Ginz, Carl Wagener	*South Bend, Ind.*
Golla, Gertrude Marie	*Grand Rapids*
Goza, Ned Steel	*Helena, Mont.*
Greig, Walter Baird	*Waukegan, Ill.*
Greunke, Emery August	*Appleton*
Griem, Rolf	*New Holstein*
Hamann, Arthur John	*Lake Mills*
Hamilton, Bradford	*Madison*
Hantman, Will Lee	*Terre Haute, Ind.*
Hargrave, Fred Merrill	*Colfax, Wash.*
Harper, Benjamin Louis	*Peshtigo*
Harrison, Guy Cleo	*Frankfort, Ind.*
Hathaway, Fred Clermont	*Milwaukee*
Haydon, Robert McClintock	*Lexington, Ky.*
Heinecke, Frederick Herman	*Sheboygan*
Helmer, John Horatio	*Clinton*

Henry, Albert James	*Michigan City, Ind.*
Heyman, Edgar Isaac	*Chicago, Ill.*
Hinrichs, Gordon Theodore	*Madison*
Hoch, Arthur Riener	*Huntington, Ind.*
Hoffman, Otis Edward	*Madison*
Hoffman, Ralph Lea	*Waupaca*
Hopkins, Edward James	*Madison*
Hughes, William Robert	*Milwaukee*
James Raymond Hoerner	*Chicago, Ill.*
Jenkins, Lyel Newton	*Leon*
Jensen, Emil Henry	*Glenwood, Minn.*
Johnson, Albert Sigfred	*Shell Lake*
Jones, Glenburn Meeker	*Attica, Ind.*
Kaulfuss, Arthur Frederick	*La Crosse*
Keeley, Clarence Armond	*Mayville*
Kieckhefer, William Henry Otto	*Milwaukee*
Kletzien, Adonis Theodore	*New Holstein*
Kletzien, Loyal Herman	*New Holstein*
Knorr, Arthur Herman	*Kiel*
Lange, Alexander	*Portland, Ore.*
Lederer, Carl Singer	*Chicago, Ill.*
Leonard, Lowell Austin	*Riverside, Ill.*
Levi, Robert Ray	*Georgetown, Ind.*
Lichtfeldt, Clarence Hellmuth	*Milwaukee*
Lindberg, Gustav Heimer	*Tacoma, Wash.*
List, Raymond Ford	*Belvidere, Ill.*
Lonergan, James Leo	*Freeport, Ill.*
Luebben, Gerold Edward	*Milwaukee*
McDermid, William Reay	*Eau Claire*
Macfadden, William Semple	*Fargo, N. D.*
Mack, William Davis	*Madison*
Mackenzie, James Norman	*North Tonawanda, N. Y.*
Mahler, James Blaine	*Milwaukee*
Mallow, Roy Shaults	*Billings, Mont.*
Mandel, Herbert William	*La Grange, Ill.*
Marshall, Harry Lloyd, Jr.	*Chicago, Ill.*
Martin, George Caryle	*Duluth, Minn.*
Matthews, John Edward	*Ashland*
Mendonca, Olyntho	*Manaos, Brazil*
Mengel, Clarence Rudolph, Jr.	*Louisville, Ky.*
Merrill, Leland Maxwell	*Merrillan*
Millard, Paul Vilas	*Antigo*
Miller, Harvey Nelson	*West Allis*
Mills, Joseph Alderman, Jr.	*Nevada, Ia.*
Mitchell, John Lendrum	*Milwaukee*
Monser, Edward Lomax	*Wenona, Ill.*
Morse, Grant Algernon	*Madison*
Morse, Harry Arthur	*Madison*

Mueller, Louis Elmer	*Milwaukee*
Nelson, Emil Gerhard	*Stoughton*
Newton, Merritt Harrison	*Sparta*
Nicholson, Joseph Isaac	*Chattanooga, Texas*
Nicolai, Chester Charles	*Milwaukee*
Niemand, Alfred Richard	*Davenport, Ia.*
O'Connor, James Francis	*Excelsior*
O'Neill, Elsie Mary	*Madison*
O'Neill, Marie Angeline	*Madison*
Passmore, Dempster Stewart	*Iola*
Perkins, John Raymond	*Gales Ferry, Conn.*
Peters, Robert Leroy	*Blue River*
Petersen, Edward Moritz	*Kansas City, Mo.*
Pope, Roy Ernest	*Ashland*
Poundstone, George Finnerty	*Mellen*
Prange, Elmer William	*St. Louis, Mo.*
Pugh, Laird McCormick	*Howard*
Quail, John Joseph	*Hayward*
Quinn, Lucile Regina	*Madison*
Ragan, Fred Charles	*Grand Rapids*
Reyer, Hugo	*Colby*
Reynolds, Russell Burton	*Dundee, Mich.*
Rimsnider, Harry Edgar	*Madison*
Rom, Roy George	*Milwaukee*
Rosenheimer, Adolph Lehman	*Kewaskum*
Rosenow, Herbert Richard	*Menasha*
Rothwell, Paul Taylor	*Needham, Mass.*
Ruedebusch, Kurt Carl	*Mayville*
Salsman, Thomas Jefferson, Jr.	*Oak Park, Ill.*
Schaefer, Leo Henry	*Muscoda*
Schmidt, Ernst Conrad	*Chicago, Ill.*
Scholl, Hastings C.	*Owatonna, Minn.*
Schomberg, Carter Otto	*Milwaukee*
Schubert, Harold John	*Madison*
Schweke, Phillip Rheinhart	*Reedsburg*
Shank, Carl Bradley	*Chicago, Ill.*
Simpson, John Sherer	*Janesville*
Smith, Russell Evarts	*Madison*
Sprague, Leonard Tower	*Grafton, N. D.*
Squires, Lucius Alvin	*Poynette*
Starker, Ernest August	*Burlington, Ia.*
Starr, James Ralph	*Chicago, Ill.*
Stivers, Gerald Ducat	*Ripon*
Stone, Miles Adee	*Sycamore, Ill.*
Sweet, Frank Hampton	*Madison*
Swinson, Carl	*Baraboo*
Tarney, Clyde Harold	*Wonewoc*
Taylor, Franklin Lester	*Iola*
Taylor, Glenn Erwin	*Ashland*

Thomas, Charles Signor, Jr.	*Chicago, Ill.*	
Tikalsky, Charles William	*Brillion*	
Titsworth, Fred Lewis	*Western Springs, Ill.*	
Tree, Orville Le Roy	*South Wayne*	
Tye, William Leo	*West Chicago, Ill.*	
Van Lone, Ralph Arthur	*Beloit*	
Wahl, Victor Theodore Karl	*Eau Claire*	
Walther, Herman O.	*Watertown*	
Westberg, Ivy John	*Marinette*	
Whitlock, Harold Phelps	*Chicago, Ill.*	
Wiles, George Marshall	*Kansas City, Mo.*	
Withington, James Sterling	*Baraboo*	
Wood, George Emery	*Cottage Grove*	
Wright, Oman Burton	*Belvidere, Ill.*	
Young, William Monroe	*Milwaukee*	
Zwickel, Ernest Maurice	*Anderson, Ind.*	—183

Course in Chemistry

Caradine, Mahlon Humphrey	*Monroe*	
Cauwenberg, Winfred Joseph	*Green Bay*	
Crapser, Charles Chaffee	*Waupun*	
Epstein, Samuel Noah	*Madison*	
Etter, Rolland Robert	*Monroe*	
Fleck, Louis Carl	*De Pere*	
Graper, Leslie Gilbert	*Fort Atkinson*	
Huebner, Erwin Otto	*Oconomowoc*	
Langemak, Wesley Ewing	*Evansville*	
Mount, Norman Hugh	*West Allis*	
Pancoast, William	*Eaton, Ind.*	
Schumacher, Earl Emerson	*Beaver Dam*	
Scott, Earl William	*Cambridge*	
Stebbins, James Le Roy	*Tulsa, Okla.*	
Stericker, William	*Manitowoc*	
Tank, Charles Otto	*Milwaukee*	—16

Course in Journalism

Baker, Helen Mae	*Madison*	
Berg, Max John	*Waupun*	
Brown, John Breckenridge	*Madison*	
Curtis, Herbert Harry	*Kenosha*	
Durbrow, Harry Meade	*Madison*	
Frantz, Edmund Douglas	*Enid, Okla.*	
Harrison, Ethel Vivian	*Madison*	
Hein, Edward Nicholas	*Madison*	
Heise, Anna Sophia	*Miwaukee*	
Hevener, James Kenneth	*St. Paul, Minn.*	
Hornaday, Hilton Parks	*Washington, D. C.*	

Howe, Herbert Riley	*Sioux Falls, S. D.*	
Jimerson, Royal Wade	*Menomonie*	
Johnston, Charles Frederick, Jr.	*Sheffield, Ia.*	
Judell, Maxson Foxhall	*Milwaukee*	
Kailen, Florence	*Madison*	
Kittleson, Eva Sylvia	*Elroy*	
Kraus, Glenn Viering	*Marshfield*	
Kuney, Bernice Donnel	*Three Lakes*	
Lamb, James Richard	*Slayton, Minn.*	
Law, Vincent Oscar	*Chippewa Falls*	
McAdams, Arthur James	*Mukwonago*	
Moore, Willard Frank	*Connersville, Ind.*	
Morris, John Harold	*Antigo*	
Nelson, Constance Rose	*Kenosha*	
Orpet, William Henry	*Lake Forest, Ill.*	
Parrott, Bryant M.	*Keosauqua, Ia.*	
Radder, Norman John	*Sheboygan Falls*	
Sievers, Edward George	*New Holstein*	
Snaddon, Robert	*Madison*	
Tuteur, Irving Morris	*La Crosse*	
Waldron, Norman E.	*Wolcottville, Ind.*	
Webster, Byron Gordon	*St. Paul, Minn.*	
Wilcox, Guy Chester	*De Pere*	—34

ADULT SPECIAL STUDENTS

Ash, Dora Hamilton	*Madison*	Freshman
Birkelund, Victoria Marie	*Park Ridge, Ill.*	Freshman
Bishop, Lawson Waterman	*Mallet Creek, O.*	Freshman
Bissell, Clark Dean	*Richland, Mich.*	Freshman
Blackley, Louis Bradley	*Delta, Colo.*	Sophomore
Bloch, Louis Harry t c	*Madison*	Junior
Boss, Freeda Eunice	*Superior*	Junior
Briggs, Guy E.	*Lyndhurst*	Junior
Brockhausen, William Emil	*Milwaukee*	Freshman
Brown, Eleanor Annie	*Madison*	Freshman
Brunnquell, Helmuth Gustave	*Port Washington*	Sophomore
Cannon, Lucius Hanchett l a p s	*Madison*	Freshman
Chandler, Adah Marie	*Appleton*	Freshman
Child, Frank M.	*Orange, N. J.*	Freshman
Clarke, Emily Ethel	*Portage*	Senior
Dabney, William Lyle	*Madison*	Junior
Diederich, Henry Alexander	*Madison*	Freshman
Donnelly, John William	*Beloit*	Freshman
Ehler, Helen	*Madison*	Freshman
Ellis, Pearl	*Madison*	Sophomore
Gibson, Charles Archie	*Globe, Ariz.*	Sophomore
Gregerson, James Theodore	*Madison*	Freshman
Hammer, Lloyd Allen	*Madison*	Freshman
Hanson, Elmer Glenn	*Driscoll, N. D.*	Sophomore

Hatch, Norma Beatrice	*Waterloo*	Freshman
Hawkins, Herbert William	*Watertown*	Sophomore
Helmes, Lloyd Oscar	*St. Paul, Minn.*	Freshman
Jacobsen, Julius Charles	*Milwaukee*	Freshman
Johnson, Julia Magdalen	*Neenah*	Freshman
Johnston, William	*Madison*	Freshman
Jones, Griffith S. m	*Madison*	Junior
Kay, Rosaline Kadewitz	*Madison*	Senior
Keen, Dorothy Eleanor	*Larchmont, N. Y.*	Sophomore
Kinne, Burdette Ingersoll	*Madison*	Senior
Kohl, John Charles	*Marshfield*	Freshman
Larson, Joseph Bartlett	*McFarland*	Freshman
Leute, Helena Barbara	*Kilbourn*	Freshman
Loftsgordon, Henry Albert	*Madison*	Freshman
Longfield, Joseph John	*Madison*	Sophomore
Lowenthal, Marvin Marx	*Madison*	Sophomore
Lowry, Ina Scott	*Madison*	Freshman
McClanahan, George Palmer	*Waukegan, Ill.*	Freshman
McGruer, Juanita Margaret	*Langdon, N. D.*	Freshman
McKedon, William	*Milwaukee*	Freshman
Mitchell, Grace Beverly	*Lake Beulah*	Junior
Morgan, Adela R.	*Madison*	Freshman
Mountain, Arthur Harcourt	*Madison*	Junior
Nelson, Carolyn Guriena	*Madison*	Sophomore
Nevins, Edgar Veranus	*Madison*	Freshman
Newman, August	*Eau Claire*	Freshman
Ogden, Frank Edmund	*Chicago, Ill.*	Freshman
Perel, Rose	*Chicago, Ill.*	Freshman
Perry, Arline Lorne	*Madison*	Sophomore
Pierce, Caroline Susan	*Madison*	Freshman
Powell, Elias	*Madison*	Freshman
Reuter, Adelbert George	*Madison*	Freshman
Roberts, John Rhodes	*Superior*	Freshman
Sapira, Ida Edith	*Milwaukee*	Freshman
Saposs, David Joseph	*Milwaukee*	Senior
Schappa, Ida Wilcox	*Madison*	Freshman
Skabo, Reider	*St. Paul, Minn.*	Freshman
Smith, Nellie Gibbens	*Madison*	Freshman
Sneeberger, William Alvin m	*Racine*	Junior
Solon, Ruth	*Chicago, Ill.*	Freshman
Standish, Chester Kingman	*Madison*	Freshman
Stephani, Florence	*Madison*	Junior
Strasser, William	*Deerbrook*	Freshman
Totoventz, Vahan H.	*Mamouret-ul-Aziz. (Asia Minor)*	Sophomore
Town, George Galloway	*Madison*	Freshman
Trainor, Frankie	*Madison*	Sophomore
Trilling, Blanche M.	*Clarkesville, Texas*	Freshman
Ure, Albert Ray	*Salt Lake City, Utah*	Freshman
Vogt, Thordis	*Walesnind, Norway*	Freshman

Wakeman, Hattie Josephine	*Madison*	Senior
Ward, Lyman Casey	*Washington, D. C.*	Sophomore
Winship, Amy D.	*Madison*	Junior
Wood, Irving William	*Madison*	Freshman
Woodbridge, Roger Munger	*Duluth, Minn.*	Freshman
Zimmerman, Charles Homan	*Evanston, Ill.*	Freshman
		—79

Course in Commerce

Kittleson, Arthur Isaac	*Madison*	Freshman
Larson, Obed Elmer	*McFarland*	Freshman
Miller, Nina Mary Regina	*Racine*	Junior
Oestreich, Louis John	*Kewaunee*	Freshman
Rieger, Harry William	*Madison*	Junior
Schmitz, Dietrich Gustav	*Seattle, Wash.*	Freshman
		—6

Course in Chemistry

Hawes, Walter Charles	*Templeton*	Sophomore
Nichols, Merle Starr	*Madison*	Sophomore
Pierce, Paul James	*Plover*	Junior
Wille, Carl August	*Milwaukee*	Senior
		—4

Course in Journalism

Abrams, Philip	*New York City*	Freshman
Boyle, Ruth Murrin	*Butte, Mont.*	Sophomore
Brink, Stanley Ludington	*Evansville*	Sophomore
Brinton, Donald Adair	*Fessenden. N. D.*	Freshman
Chetchik, Max	*Milwaukee*	Freshman
Meyer, Alfred Wallace	*Oshkosh*	Sophomore
Murphy, Harry Saunders	*Madison*	Sophomore
Raddant, Louis August	*Shawano*	Freshman
Shaw, Henry Willard	*Madison*	Freshman
Swiger, Wilbur Moore	*Clarksburg, W. Va.*	Freshman
		—10

SCHOOL OF MUSIC

GRADUATES

Anderson, Anna Louise	*Madison*	
Ridgway, Grace Gladys	*Madison*	—2

SENIORS

Parkinson, Kathryn	*Madison*	—1

JUNIORS

Keller, Eleanor Hardy	*Madison*	
Lake, Dora Lucile	*Madison*	
Richards, John Stanley	*Madison*	—3

SOPHOMORES

Harrington, Eileen Mary	*Hurley*	
Humiston, Floy Matilda	*Madison*	
Lovejoy, Edna Gurina	*Stoughton*	
McConnell, Nellie Rosetta	*McFarland*	
Paltz, Marie Anna Elizabeth	*Madison*	
Scott, Ruth Eloise	*Richmond, Ind*	
Watson, Ruby Caroline	*Stoughton*	—7

FRESHMEN

Coe, Madge Ruth	*Streator, Ill.*	
Egan, Ella Anastatia	*Hurley*	
Goerler, Alma Minnie	*Sawyer*	
Hubbell, Etta	*Edgerton*	
Linse, Margaret	*La Crosse*	
Nystrum, Martha Marie	*Medford*	
Piper, Helen Elizabeth	*Madison*	
Pohle, Viola Elizabeth	*Bloomington*	
Schook, Lina Francis	*Crystal Falls, Mich.*	
Scilley, Jean Irene	*Billings, Mont.*	—10

ADULT SPECIALS

Briggs, Ruth Lorena	*Madison*	Sophomore
Frish, Gertrude Genevieve	*Madison*	Freshman
		—2

Supervisor's Course

SECOND YEAR

Charles, Lucille Helen t c	*Madison*	
Donovan, Adelaide Veronica t c	*Madison*	
Dunfield, Helen Bourcier	*Madison*	
George, Gladys Gundry t c	*Madison*	
Haverstock, Alpha Marie	*Pueblo, Colo.*	
Helgeson, Elsie Olive t c	*Marinette*	
Herrman, Harriet Ruth t c	*Sparta*	
Johnson, Claudine Brun t c	*Stoughton*	
Laubenstein, Guinevere Josephine	*Gresham*	
Main, Mary Elyda	*Madison*	
Palmatier, Nelle Frances	*Madison*	
Robinson, Miriam Josephine	*Madison*	
Thompson, Vera Martha	*Fennimore*	
Wallace, Marjorie Marie	*Evansville*	—14

FIRST YEAR

Black, Marguerite Evelyn Jacques t c	*Oregon*	
Black, Nellie Maude t c	*Madison*	
Craker, Gladys Vivian t c	*Reedsburg*	
Critchlow, Ivanelle t c	*Mellen*	
Daly, Annina t c	*Grand Rapids*	
Finney, Marie t c	*Madison*	
Gnagi, Zelma Irene t c	*Monroe*	
Gjertson, Pearl Constance t c	*Stoughton*	
Gysbers, Bessie Elizabeth	*Brandon*	
Hanson, Evelyn Cornelia t c	*Rio*	
Hittner, Genevieve Marguerite	*Seymour*	
Hogan, Dorothy Ethelbert t c	*Madison*	
Marty, Belva Marie t c	*Monroe*	
Metcalf, Grace Perkins t c	*Spring Green*	
Mingle, Hilda Adne t c	*Daleville, Ind.*	
Nachtigall, Elfrieda Adelaide t c	*Marinette*	
Paulson, Maebelle Idelia t c	*Stoughton*	
Radcliffe, Ruby Marie t c	*Eagle River*	
Reece, Ruth Gertrude	*Canal Dover, O.*	
Shearer, Vera Velona t c	*Fennimore*	
Shemick, Frank William t c	*Marinette*	
Sherman, Mildred Adele	*Elroy*	
Stevenson, Carlisle Edward	*Marinette*	
Taylor, Florence	*Madison*	
Thompson, Blanche Lucile t c	*Shullsburg*	
White, Vila Elizabeth t c	*Madison*	
Witts, Melford	*Madison*	
Woerfel, Lucy Augusta t c	*Sturgeon Bay*	—28

ADULT SPECIALS

Hyde, Georgia Calvin t c	*Madison*	Freshman
Owen, Ella Winifred t c	*Elgin, Ill.*	Freshman
		—2

UNCLASSIFIED

Anderson, Anna Louise	*Madison*
Donovan, Katherine	*Madison*
Eisaman, Sophie J.	*Mishcott*
Enright, Agnes Elizabeth	*Troy Center*
Ewing, Elma Lorena	*Richland Center*
Haspell, Lillian Aline	*Madison*
Hill, Edna Marion	*Madison*
Hooper, Lorna	*Oshkosh*
Hopkins, Bess Brewer	*Madison*
Houghton, Bertha K.	*Madison*

Houghton, Harry Garfield	*Madison*	
Ibach, Esther Matilda	*Alma*	
Koch, Rose Mary	*Prairie du Sac*	
Latham, Ella O.	*Washington, D. C.*	
Levitan, Esther	*Madison*	
L'Hommedieu, Marie	*Cincinnati, O.*	
McKinley, Harriet Belle	*St. Ansgar, Ia.*	
Michelson, Christina Amanda	*Black Earth*	
Montgomery, Alice Norris	*Madison*	
Morgan, Johanna Rossberg	*Madison*	
Post, Jessie	*Madison*	
Richards, Laura J.	*Madison*	
Roloff, Norma	*Madison*	
Watzke, Zelma Alberta	*Madison*	
Wolley, Hilda Lydia	*Madison*	
Zimmerman, Marion Atkinson	*Johnstown, Pa.*	—26

Students from Other Colleges Electing Courses in Music

Abbott, John Hascall a	*Goshen, Ind.*
Achtenberg, Henrietta Lorraine 1 s	*Madison*
Adler, John Henry 1 s	*Milwaukee*
Agrell, Elsa Eugenia 1 s	*Superior*
Alexander, Irma Elizabeth 1 s	*Lake Geneva*
Allene, Perc Thomas 1 s	*Benton*
Allman, Major Fisher 1 s	*Crown Point, Ind.*
Alston, Faustine M. 1 s	*Hamilton, Ont.*
Ambler, Frank Irvin 1 s	*Endeavor*
Anderson, Anna Marie g	*Madison*
Anderson, Lewis Orvin 1 s	*Barneveld*
Andrews, Olive Viola 1 s	*Oshkosh*
Andrus, Ruth C. a	*Madison*
Arzberger, Ida Barbara 1 s	*Helenville*
Bachuber, Leo John a	*Mayville*
Baker, Ross Allen g	*Madison*
Baldwin, Merle Mary 1 s	*Dubuque, Ia.*
Bancroft, George Stanley a	*Mt. Horeb*
Bannen, Dorothy Agnes 1 s	*Milwaukee*
Barclay, Arthur J. g	*Madison*
Barr, Helen Adeline 1 s	*Oak Park, Ill.*
Bartmann, Selma Henrietta 1 s	*Marshfield*
Bassett, Norman Douglas 1 s	*Madison*
Baum, Harry Neal 1 s	*Madison*
Beach, Bertha S. 1 s	*Madison*
Beach, Sarah Morehouse g	*Bridgeport, Conn.*
Bechtel, Ethel Elizabeth 1 s	*Cavalier, N. D.*
Beck, Victor Van 1 s	*Madison*
Bennett, Thomas Edmund e	*Chemulpe, Corea*
Benson, Jeanette 1 s	*Greenwich, Conn.*
Bernard, Burchard Peter 1 s	*Mayville*

Best Louis Freeman l s	*Madison*
Bishop, George Marsters l s	*Albany*
Brayton, Harold Renshaw ls	*Ripon*
Breidablik, Ellida ls	*Madison*
Brendel, Roy Albert ls	*Milwaukee*
Brittel, Bessie Vera ls	*Milwaukee*
Brookins, Medora Clarke ls	*Madison*
Brown, Jenoise ls	*Oshkosh*
Brown, Louise Withee ls	*Chicago, Ill.*
Brown, William Walker ls	*Marinette*
Brunkhorst, Robert O. ls	*Milwaukee*
Buchanan, Perry B. e	*Winnetka, Ill.*
Bundy, Dorothy Etta ls	*Centralia, Ill.*
Burwell, Edward Langworthy a	*Madison*
Cameron, Mary Regina ls	*Chippewa Falls*
Carpenter, Elbert Hand ls	*Racine*
Carr, Marguerite Blanche ls	*Adams, Minn.*
Chapin, Huber Alva e	*Winfred, S. D.*
Chapman, Clinton Joseph a	*Darlington*
Chase, Stephen 4th a	*Madison*
Chworowsky, Karl Moses C. g	*Madison*
Clark, Edith Bassett ls	*Whitewater*
Clark, Kenneth Dyer e	*Chicago, Ill.*
Cliffe, James Howard a	*Germantown, Pa.*
Cole, Everett Leland e	*Hollis, Kas.*
Coleman, Bessie M. ls	*Madison*
Colvile, Clarence Leroy a	*Valley City, N. D.*
Connors, Harold F. ls	*Hurley*
Cooke, Reginald Bancroft g	*Madison*
Coon, Philip Leslie g	*Milton*
Cox, Winifred L. ls	*Cairo, Ill.*
Craft, Fern Janette a	*Kingsbury, Ind.*
Crane, Mary Alice Whittaker ls	*Brooklyn, N. Y.*
Cromander, Marjorie Anna ls	*Moline, Ill.*
Crosser, Callender Armstrong ls	*East Aurora, N. Y.*
Crouse, Laura Louise ls	*Cincinnati, O.*
Crowl, Ralph S. ls	*Madison*
Danielson, Walter A. e	*North Milwaukee*
Dauplaise, Yvonne Marie ls	*Superior*
Davies, Anna Elizabeth ls	*Racine*
Davis, Marjory Anna ls	*Madison*
Davis, Martha Ella ls	*Huron, S. D.*
Dawson, Dorothy Ware ls	*Waverly, Ia.*
Day, Florence Hodson ls	*Hartford*
Deming, Genevieve Elizabeth ls	*Madison*
Deming, Lucile Cora ls	*Madison*
Dietze, Carl Edgar l	*Mayville*
Dobeas, Emma Jane ls	*Ingalls, Mich.*
Docken, Clarence Oliver ls	*Madison*
Dodge, Chester Lyman ls	*Madison*

Doeringsfeld, Harry August e	*Boscobel*
Doughty, Helena g	*New York, N. Y.*
Douglas, James Lee ls	*Madison*
Duemling, Gerhard Wilhelm ls	*Milwaukee*
Dustrude, Willard Arthur a	*Oconomowoc*
Dyar, Edna Gerrish ls, m	*Madison*
Eaton, Starr Sedgwick a	*Madison*
Edwards, Irene C. ls	*Ashland*
Eitelgoerge, Norma Augusta ls	*Aurora, Ill.*
Fauerbach, Elsa Marie a	*Madison*
Feldenheimer, Paul Edgar ls	*Portland, Oregon*
Fitz Gibbon, Alice Elizabeth ls	*Waunakee*
Fleck, Louis Carl ls	*De Pere*
Fletcher, Edytha ls	*Des Moines, Ia.*
Follmer, Pansy M. a	*Oak, Nebr.*
Foote, Evalyn Louisa ls	*Parkersburg, Ia.*
Ford, Herbert Jean ls	*Westfield*
Forster, Carl Alois ls	*Milwaukee*
Foster, Gretchen Malina ls	*Brandon*
Frederickson, Jean Fyfe ls	*Madison*
Frost, Edna Hayes ls	*Almond*
Garbutt, Ethel Grace ls	*Milwaukee*
Gasser, Almond Proctor ls	*Arcadia*
Gebhart, Corinne ls	*Kenosha*
Gehrz, Alma Madeline ls	*Milwaukee*
Getts, Clark Hallam ls, l	*Whitehall*
Gilman, Edgar Dow g	*Madison*
Glassner, William ls	*Milwaukee*
Gleason, May Columbia a	*Madison*
Goodrich, Winifred Belle ls	*Milton Jct.*
Gorham, Dean Bartlett ls	*Decatur, Ill.*
Gram, Agnes Marie ls	*Milwaukee*
Grover, Stephen F., Jr. ls	*Grantsburg*
Guenther, Oscar Frederick a	*Campbellsport*
Haberla, Howard P. l	*Milwaukee*
Habermann, Lucius Clement ls	*Lodi*
Hallisey, Loretto Genevieve ls	*Baraboo*
Halperin, Victor Hugo ls	*Chicago, Ill.*
Hameister, Victor Carl e	*Cleveland, O.*
Hamilton, Mary Jeanette ls	*Berlin*
Haner, Helen Sara ls	*Sun Prairie*
Haney, Olga Bertha ls	*Kewaunee*
Hansen, Alvin Harvey g	*Viborg, S. D.*
Harwick, Wearne E. ls	*Madison*
Hass, George Edward ls	*Reedsburg*
Hatch, Lucile Dorothy ls	*Baraboo*
Heinecke, Frederick Herman ls	*Sheboygan*
Hendricks, Gertrude W. ls	*Madison*
Henken, Jacob F. ls	*Racine*
Henning, Erwin Lloyd a	*Watertown*

Herrick, Roy Jefferson ls	*Horicon*
Herrington, Edna Truax ls	*Madison*
Herrold, Lloyd Dallas ls	*Madison*
Herzog, Harry Joseph ls	*Racine*
Hitchens, Jerilda M. ls	*Waterloo, Ia.*
Hoefer, Ruby Anna ls	*Freeport, Ill.*
Hoeveler, Leo George ls	*Madison*
Homet, Roland Stevens l	*Camptown, Pa.*
Horner, Louis C. l	*Madison*
Horst, Anna Elizabeth ls	*Oshkosh*
Horwitz, Jack ls	*Milwaukee*
Houghland, Glen Sanford e	*Madison*
Hsu, Zun-Chan l s	*Chanchow, China*
Hubbard, William Earle ls	*Duluth, Minn.*
Hudson, Margaret Marie ls	*Madison*
Hughes, Margaret Mary ls	*Madison*
Hyde, Will Carrington ls	*Madison*
Ibsen, Herman Lauritz g	*Chicago, Ill.*
Isenberg, Walter Carl ls	*Baraboo*
Ivey, Marguerite Coad ls	*Mineral Point*
Jackman, Flossie Esther ls	*Madison*
Jacobson, Victor Clarence ls	*La Crosse*
Jaggard, Clara Louise ls	*Emporia, Kas.*
Jandl, Charles O. ls	*Racine*
Jenkins, Elizabeth Crocker ls	*Sandwich, Mass.*
Jennings, Rhea Mabel ls	*Necedah*
Johnson, Huldah Marie ls	*Madison*
Johnson, Marguerite Henrietta ls	*Washington, D. C.*
Jones, Anna Dorothy ls	*Sioux City, Ia.*
Jones, Charles William ls	*Madison*
Jones, Howard Mumford ls	*La Crosse*
Jones, Jeanette ls	*Columbus Grove, O.*
Jones, Maldwyn Lloyd ls	*Racine*
Kay, Rosaline ls	*Madison*
Keith, Ruth Alice ls	*Galesville*
Kelly, Bessie Mary ls	*Briggsville*
Kelly, Harry Richmond ls	*Toledo, O.*
Kerr, Spencer Hall ls	*Catonsville, Md.*
King, Kenneth Caldwell ls	*Oak Park, Ill.*
King, Mary Louisa ls	*Hurley*
Knollin, James Charles a	*Bethel, Kas.*
Koehler, Lucy Josephine ls	*Menomonie Falls*
Koltes, Raphael Peter ls	*Waunakee*
Kremers, Elsa ls	*Madison*
Kress, John Willfam ls	*Tomah*
Kristoferson, Alfred Jr. a	*Seattle, Wash.*
Lamson, Frederick William ls	*Roberts*
Lange, Raymond Charles a	*Eau Claire*
Lathrop, Francis Child ls	*Madison*
Laue, Charlotte Margaret ls	*Alma*

Laue, Gilbert Eric l	*Madison*
Lawrence, Esther Joy ls	*Duluth, Minn.*
Leenhouts, Frances Elizabeth ls	*Milwaukee*
Leisen, Raymond John ls	*St. Cloud, Minn.*
Leslie, Kathleen ls	*Verona*
Lloyd, Ashley Bond ls	*Madison*
Lobdell, Martyn Clifford a	*Mukwonago*
Lohr, Freeman Doolittle e	*Orange City, Ia.*
Lu, Shon Wen ls	*Canton, China*
Luhmann, Robert Adolph ls	*Sheboygan*
Lyle, George Margaret ls	*Madison*
MacCarthy, Florence Harrison e	*Baltimore, Md.*
McDaniel, Maude g	*St. Joseph, Mo.*
McGilvary, Lewis Paton e	*Madison*
MacGilvra, Ralph Alexander a	*Baraboo*
MacKinney, Loren Carey g	*Appleton*
McNeil, Mary Eunice ls	*Stoughton*
Macklin, Theodore g	*Madison*
Manegold, Gertrude ls	*Milwaukee*
Mann, Roberta Rice ls	*Muskegon, Mich.*
Marquart, Ruth ls	*Madison*
Marshall, Howard Parsons ls	*Milwaukee*
Marshall, Mabel Minnie ls	*New York City*
Mathews, Madeline Eleanor ls	*Ashland*
Maw, Irene Augusta ls	*Madison*
May, Phyllis Crawford ls	*Platteville*
Melaas, Esther Adell ls	*Madison*
Meloche, Villiers Willson ls	*Madison*
Mengelberg, Gertrude ls	*Milwaukee*
Merriam, Leslie Joseph a	*Darlington*
Miller, Nina Mary R. ls	*Madison*
Milner, Myrtle Olive ls	*Stanley*
Moerke, Ewald Louis ls	*Madison*
Mohr, Edna ls	*Milwaukee*
Monroe, Ellis ls	*Yonkers, N. Y.*
Morris, Caroline Ruth ls	*Oshkosh*
Morris, Edith Irene ls	*Oshkosh*
Morris, George Charles a	*Madison*
Morris, Robert Buckner Jr. g	*Victoria, Texas*
Morrison, Elton Joseph, Jr. ls	*Chetek*
Mueller, Amy Fredericka ls	*Madison*
Nebel, Catherine Elizabeth ls	*Milwaukee*
Nelson, Vernus Edwin ls	*Argyle*
Neuenschwander, Adolph Herman ls	*Athens*
Neuenschwander, Edward John ls	*Athens*
Nichols, Merle Starr ls	*Madison*
Nyhus, Paul Odin a	*Chippewa Falls*
Oehler, Sidney Loesch l s	*Lake Mills*
Oren, Edna Tomena ls	*Stoughton*

Patterson, Robert Paul e	*Luck*
Paul, Irene Rosalind ls	*Hurley*
Peisch, Archie Marcus ls	*Eau Claire*
Pergande, Arthur George e	*Cedarburg*
Perry, Arline Lorne ls	*Madison*
Perry, Charles Stanley ls	*Wauwatosa*
Peterman, Hans August e	*Milwaukee*
Petersen, Lillian Estelle ls	*Racine*
Petersen, Elsea Gladys ls	*Sioux Falls, S. D.*
Pettibone, Dorothy Foster ls	*Madison*
Pickett, Roswell C. a	*Madison*
Pope, Charles Alfred a	*Racine*
Porter, Carl Elder ls	*Madison, S. D.*
Post, Eveline Margaret ls	*Edgerton*
Potter, Edward Palmer e	*Milwaukee*
Priester, Henry Carl ls	*Madison*
Quentmeyer, Philip Carl a	*Watertown*
Rabak, William ls	*Madison*
Rahmlow, Henry John a	*Appleton*
Rankin, Edna ls	*Missoula, Mont.*
Rannenberg, George ls	*Madison*
Rawson, Harry Walker ls	*Plainfield*
Reichert, Edward Edgar ls	*Madison*
Reichert, John Lester ls	*West Bend*
Reinhart, George Stanley ls	*Toledo, O.*
Reinke, Walter Ernest ls	*Marinette*
Reitz, Carrie Jean ls	*Chicago, Ill.*
Renick, Florence Caroline a	*Woodstock, Ill.*
Richards, Clarke Arno a	*Madison*
Richards, William ls	*South Bethelem, Pa.*
Riordan, Helen Blanche ls	*Hayward*
Roberts, John Basil a	*Shullsburg*
Roberts, Jessie Louise ls	*Superior*
Rodigan, Mary Virginia ls	*Racine*
Rodolf, McKeriel l	*Ft. Atkinson*
Rosenberg, Louis ls	*Milwaukee*
Ross, Mae ls	*Superior*
Roult, David ls	*Milwaukee*
Rowley, Alden Bruce ls	*Madison*
Rubin, Victor ls	*Milwaukee*
Runge, Ralf Thiele ls	*Baraboo*
Russell, Cecil Macauley ls	*Eau Claire*
Saleski, Felicitas Anna ls	*Madison*
Sanderson, Charles Harrison ls	*Madison*
Sasman, Louis Milton a	*Black Creek*
Sawyer, Ruth Elizabeth ls	*Menomonie, Mich.*
Schad, James Albert e	*Baltimore, Md.*
Schappa, Gladys Wilcox ls	*Madison*
Schilling, Samuel James a	*Appleton*
Schmidt, Anna Marie ls	*Freeport, Ill.*

Schmidt, Roy Hugo ls	*Davenport, Ia.*
Schneider, Elsie Elizabeth ls	*Madison*
Schwind, Benjamin Jacob, Jr. ls	*Dubuque, Ia.*
Scott, Martha Helen g	*Richmond, Ind.*
Segall, Julius ls	*Superior*
Sherman, Minnie Belle ls	*Le Mars, Ia.*
Shero, Lucius Rogers g	*Racine*
Shields, Florence Lavinia g	*Garnett, Kas.*
Shostac, Percy B. ls	*New York City*
Smith, Alma Edith ls	*Milwaukee*
Smith, John Earl g	*Lawrenceburg, Ind.*
Smith, Kenneth Blum ls	*Viroqua*
Smith, Moses William a	*Sparta*
Smith, Vera Louise Davies ls	*Beloit*
Stevens, Benjamin Alonzo ls	*La Crosse*
Stine, Oscar Clemen g	*Sparta*
Stover, Isabella Byington ls	*Milwaukee*
Strehlow, Peter Carl	*Madison*
Strelow, Idelle Celeste ls	*Madison*
Sturtevant, Hazel Isabel a	*Lynden, Ill.*
Suhm, Clarence Falk e	*Milwaukee*
Suhm, Herbert Ralph e	*Milwaukee*
Tarney, Clyde Harold ls	*Wonewoc*
Taylor, Eloise ls	*Greenville, Miss.*
Taylor, Eugene Cowles ls	*Huron, S. D.*
Taylor, Gertrude Diana ls	*Delavan*
Thauer, Olive Elizabeth ls	*Watertown*
Thielman, Marie Anna ls	*West Bend*
Thompson, Jessica Agnes ls	*Madison*
Thorpe, Dorothy Ollivette a	*Green Bay*
Tiernan, William Lawrence ls	*Edgerton*
Truran, Walter Weatherby e	*Pierre, S. D.*
Tuttle, Ray Charles ls	*Madison*
Wahl, Victor Theodore ls	*Eau Claire*
Walker, Harold Ray a	*River Falls*
Ward, Albert Henry a	*Evanston, Ill.*
Ward, Mabel Lucy ls	*Evanston, Ill.*
Warmingham, Josephine Nichols ls	*Genoa Jct.*
Warwick, Sarah Elizabeth a	*Keokuk, Ia.*
Watson, Florence Giddings ls	*River Forest, Ill.*
Watzke, Louis August ls	*Madison*
Webb, Alice Lindsey	*Madison*
Weeks, Bertha Mary ls	*Racine*
Wehrwein, Carl Frederick a	*Manitowoc*
Wells, Alberta Mae ls	*Denver, Colo.*
Wengler, Harold ls	*Madison*
Whipple, Herbert Eugene l	*Superior*
Whitehouse, Herbert g	*Markesan*
Williams, Edgar Lindly a	*Bloomingdale, Ill.*
Williamson, Robert Crosier g	*Rockford, Ill.*

Wilmanns, Elsa Albertha	*Milwaukee*	
Wilsey, Stanley Miller a	*Newark, N. J.*	
Wilson, William Clark a	*Greenhall, Ky.*	
Wittwer, Elgia Lelia ls	*Madison*	
Woll, Margaret Louise a	*Madison*	
Wright, Lester James a	*Waukesha*	
York, Pansy Celia ls	*Superior*	
Young, Marvin Hooper g	*Montgomery, Tex.*	—338

MEDICAL SCHOOL

SECOND YEAR

Bundy, Harry Eugene ls	*Milwaukee*	
Cibelius, Charles Anthony ls	*Milwaukee*	
Crile, Dennis Rider Wood ls	*Madison*	
Dallwig, Herbert Carl ls	*Milwaukee*	
Dallwig, Leon Eugene ls	*Milwaukee*	
Doege, Karl Herman ls	*Marshfield*	
Dyar, Edna Gerrish ls	*Madison*	
Gillis, James Peter ls	*Deerbrock*	
Haessler, Ferdinand Herbert B. A. g	*Milwaukee*	
Harper, Carl Samuel ls	*Madison*	
Hillesheim, George Reinhard ls	*Madison*	
Hommel, Placido Ramos Vasquez ls	*Neillsville*	
Kolls, Alfred Conrad ls	*La Crosse*	
Larkin, Aloysius James ls	*Whitewater*	
O'Hora, Bernard Anthony ls	*Madison*	
Roos, Edmund Carl ls	*Oshkosh*	
Schlomovitz, Benjamin Herman ls	*Milwaukee*	
Schmidt, Erwin Rudolph B. A.	*Arcadia*	
Senty, Elmer George ls	*Arcadia*	
Theige, Karl Johannes B. S. g	*Viroqua*	
Townsend, Eugene Herbert ls	*New Lisbon*	
Turgasen, Francis Edward ls	*Richland Center*	
Zaegel, Robert Lupinski ls	*Sheboygan*	—23

FIRST YEAR

Anderson, George Herman ls	*La Porte, Ind.*	
Arnold, Bird Mabel ls	*Glen Ellyn, Ill.*	
Bachmann, Harold Albert ls	*Sheboygan*	
Bauer, William Waldo ls	*Milwaukee*	
Bentley, John Edward ls	*Portage*	
Birkland, Olav Nelson, B. A.	*Beldenville*	
Brindley, Roy ls	*Boscobel*	
Brown, Clarence John ls	*Plum City*	
Buerki, Robert Carl ls	*Waukesha*	

Chovey, Paul Purshotham ls	*Bombay, India*
Collins, Paul Fisk ls	*Stevens Point*
Dearing, Bradford French ls	*Shelbyville, Ill.*
Fedt, Andrew John B. A.	*McFarland*
Flynn, Michael Henry B. A.	*Hartford*
Fogo, Hugh ls	*Gillingham*
Fritsche, Albert ls	*New Ulm, Minn.*
Gatterdam, Eugene Alfred ls	*La Crosse*
Gieseler, Rudolph Jacob ls	*Racine*
Grebel, Emerson Ralph ls	*Green Bay*
Havenor, Reslo Sherman B. A.	*Belvidere, Ill.*
Hedges, Robert Nathaniel ls	*Neenah*
Hillberry, Maud Eva ls	*Blue River*
Hillesheim, Clara M. A.	*Sleepy Eye, Minn.*
Hodges, Paul Chesley ls	*Ashland*
Jacobson, Victor Clarence ls	*La Crosse*
Jones, Griffith S. ls	*Madison*
Kasak, Michael ls	*Madison*
Kittelson, John Astal B. S. g	*Madison*
McGill, Ernest Charles ls	*Superior*
McGruer, Earl ls	*Langdon, N. D.*
Mayfield, Alfred Lisle ls	*Cataract*
Menninger, Karl Augustus ls	*Topeka, Kas.*
Meyer, Herman Charles ls	*Oshkosh*
Mielke, Edward Frank l s	*Shawano*
Monroe, Noel Gates B. A.	*Spooner*
Moran, Michael David ls	*Madison*
Nause, Fred August ls	*Sheboygan*
Neseth, Ole Sever B. A.	*Skyberg, Minn.*
Neumann, John Xavier B. A.	*Madison*
Opie, Harold William ls	*Rockford, Ill.*
Parsons, Robert ls	*Chicago, Ill.*
Peacock, Kenneth Cleland ls	*Oconomowoc*
Prees, Reginald D. ls	*Cambria*
Ramser, Harold Alfred ls	*Milwaukee*
Rath, Floyd Cecil ls	*Sparta*
Robinson, Byron Lewis ls	*Oconomowoc*
Roudebush, Mary Torrey ls	*Memphis, Tenn.*
Shacoff, Henry ls	*Milwaukee*
Skemp, Archie Ambrose ls	*La Crosse*
Smith, Curtis Everett B. A. g	*Springville, Tenn.*
Sneeberger, William Alvin ls	*Racine*
Stoeber, Mary Margaret ls	*Madison*
Tomhagen, Edith Sommer B. A.	*Chicago, Ill.*
Tormey, Albert Robert ls	*Madison*
Waite, Gilbert Dillon ls	*Madison*
Weston, Burton Raymond ls	*Mason City, Ia.*
Winn, Henry Newton ls	*Poynette*

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COURSE IN PUBLIC HEALTH

Henika, Guy William g	*Madison*	
Meanwell, Walter Ernest g	*Madison*	—2

COURSE IN PHARMACY

Four Year Course

Chilson, Benjamin	*Beloit*	Senior
Elwers, George Ernest	*Neenah*	Senior
Federer, Francis Albert	*Waukesha*	Junior
Fisher, Karl Frederick	*Baraboo*	Freshman
Hoffman, Frank Joseph	*Tigerton*	Junior
McGruer, John James	*Langdon, N. D.*	Sophomore
Mehlig, Lee Percy	*Madison*	Senior
Miller, Henry Farrand	*La Crosse*	Junior
Mueller, Norbert Robert	*Princeton*	Junior
O'Flahrity, Thomas	*Montfort*	Freshman
Palmback, Harry Richard	*Appleton*	Sophomore
Pfeiler, Reuben Valentine	*Sheboygan*	Senior
Rabak, William	*Madison*	Junior
Schwarz, Leonard John	*Chilton*	Sophomore
Tuft, Harry William	*Sharon*	Senior
Weiss, Joseph William	*Madison*	Sophomore
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Two Year Course

Babcock, Edward Andrew	*Madison*	Second year
Bailey, Percy Jewell	*Reedsburg*	First year
Brainard, George Vaughn	*Durand*	First year
Burnham, Horace Lowell	*Richland Center*	Second year
Clifgard, Roy Alvin	*Madison*	Second year
Confer, Robert Rodney	*Madison*	First year
Culbertson, Joseph Raymond	*Madison*	Second year
Lightner, Frank Wallace	*Randolph*	First year
Mink, Fred Clair	*Cassville*	First year
Netzel, Albert F.	*Crandon*	Second year
Plantico, Reuben P.	*Manitowoc*	Second year
Rasmussen, Timon Norton	*Oconomowoc*	First year
Rennebohm, Edwin	*Milwaukee*	Second year
Rennebohm, Fred O.	*Milwaukee*	Second year
Rhyme, William Marshall	*Portage*	First year
Rietz, Arthur William	*Athens*	First year
Scheinpflug, Fred John	*Boscobel*	Second year
Schlotthauer, Julius Philip	*Madison*	Second year
Seemann, John Adolph	*Boscobel*	First year
Sherk, Waldemar Moses	*Vermillion, S. D.*	First year
Stintzi, Alphonse Joseph	*Madison*	Second year
Wang, Einar Olaf Bjorn	*Chippewa Falls*	Second year
Wenstadt, Ernest Paul	*Shawano*	First year
Zuehlke, Vera Charlotte	*Birnamwood*	First year
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COLLEGE OF ENGINEERING

SENIORS

Adlington, Earl Raymond	*Viroqua*	E. E.
Alter, Fred Leland	*Manitowoc*	C. E.
Anderson, Russell Arnold	*Grantsburg (Adv. Course)*	C. E.
Arps, Edmund John	*New Holstein*	E. E.
Bacon, Vaughan Robert	*Madison*	E. E.
Bailey, Otterbein Andrew	*Madison (Adv. Course)*	C. E.
Baker, George Herbert	*Marshfield*	C. E.
Barbour, Curtiss Munroe	*Berkeley, Cal.*	M. E.
Bickel, Ferdinand De Witt	*Beloit (Adv. Course)*	C. E.
Bickelhaupt, Ivan Adair	*Aberdeen, S. D.*	M. E.
Bloecher, Walter Philip	*Madison*	C. E.
Bradley, Charles Harlow	*Milwaukee (Adv. Course)*	Ch. E.
Bragg, Kendal Benjamin	*Evanston, Ill. (Adv. Course)*	C. E.
Brandel, Wallace Lester	*Milwaukee*	E. E.
Breit, Charles	*Waupaca*	M. E.
Broders, Claude Emil	*Monroe*	E. E.
Butz, Charles Harold	*Mazomanie (Adv. Course)*	E. E.
Carnes, William Eugene	*Watertown, N. Y.*	C. E.
Carpenter, Russell Hand	*Racine*	M. E.
Carpenter, William Spencer	*Menominee, Mich.*	M. E.
Chang, Moses Y.	*Ningpo, China (Adv. Course)*	E. E.
Charlesworth, Frank Manley	*Kaukauna*	C. E.
Chien, Kohrin	*Chekiang, China*	E. E.
Chritzman, George Moffitt	*Madison*	E. E.
Cobaugh, Harry Augustus	*Washington, D. C.*	C. E.
Connolly, George Henry	*Racine*	C. E.
Consoer, Arthur William	*Oak Park, Ill.*	C. E.
Cook, Maynard Albert	*Alma, Mich. (Adv. Course)*	M. E.
Cooper, Fennimore	*Milwaukee*	C. E.
Corley, John Scripps	*Des Moines, Ia.*	M. E.
Cowin, Leo Vivian	*Horicon*	M. E.
Cummins, James Albert	*Des Moines, Ia.*	M. E.
Daggett, Gordon Floyd	*Madison*	C. E.
De Merit, Merrill Wilson	*Lake Mills*	E. E.
Dewey, Robert Sabin	*Denver, Colo.*	M. E.
Drew, Howard Stebbins	*Chicago, Ill.*	E. E.
Ellsworth, Charles West	*Escanaba, Mich.*	C. E.
Elsby, Alden George	*Milwaukee*	M. E.
Emerson, Ernest Willett	*Pewaukee*	E. E.
Engsberg, Ralph William	*Lake Mills*	E. E.
Erickson, Kenneth William	*Racine*	Ch. E
Evenchick, Max	*Madison*	C. E.

Ferry, Phillips Barlow	*Milwaukee*	M. E.
Fess, Perry Thomas	*Madison*	C. E.
Fisher, Glenn Bailey	*Janesville*	C. E.
Fourness, Charles Albert	*Milwaukee*	Ch. E.
Gehrmann, John Henry	*Davenport, Ia. (Adv. Course)*	Ch. E.
Gettelman, William Fredrick	*Escanaba, Mich.*	C. E.
Greenwood, Donald Whittier	*Farmington, Me. (Adv. Course)*	C. E.
Grenfell, Donald Stuart	*Madison (Adv. Course)*	Ch. E.
Grimmer, Edwin Wolsey	*Madison*	C. E.
Gruetzmacher, Clarence Saylor	*Milwaukee*	C. E.
Haley, Harold Joseph	*Madison*	C. E.
Hendee, Ceilan Abner	*Milwaukee*	E. E.
Hendricks, John Herbert	*Watertown, N. Y.*	C. E.
Hewitt, Earle John	*Madison*	C. E.
Hinckley, John Arthur	*Madison*	M. E.
Hitchcock, Claude Novalus	*Lake Mills*	Ch. E.
Hoffman, Leslie Carl	*Waterloo*	E. E.
Houghton, Samuel Locke	*Chicago, Ill.*	Min. E.
Houston, MacLean	*San Antonio, Texas*	E. E.
Isabella, Nicholas Michael	*Spooner*	C. E.
Johnson, Godfrey	*Superior*	E. E.
Jones, Albert Curtis	*Madison*	E. E.
Jones, Richard Henry	*Janesville (Adv. Course)*	E. E.
Kimball, John	*Madison*	E. E.
Kleck, Carl Frederick	*Madison*	M. E.
Kline, Matt Joseph	*South Kaukauna (Adv. Course)*	C. E.
Klotsch, Karl William	*Appleton*	Ch. E.
Knoll, Waldemar Arthur	*Milwaukee*	Min. E.
Kottnauer, Edwin Hubert	*Madison*	Ch. E.
Kranz, Herman Ernest	*Madison*	E. E.
Kunesh, Joseph Francis	*Stangelville*	C. E.
Lacey, William Randolph	*Madison*	Ch. E.
Ladon, Aaron Arthur	*Monroe*	Ch. E.
Lake, Mack Clayton	*Brodhead*	Min. E.
Laue, Gilbert Eric	*Madison*	E. E.
Lillard, Paul	*Madison*	C. E.
Little, Claudius Barton	*Madison*	E. E.
Lowry, Lellis Lloyd	*Madison*	C. E.
Luckey, Carroll Hastings	*Madison*	C. E.
MacLaren, Lewis Lachlan	*Madison*	M. E.
Marsh, William Ernest	*Grand Junction, Colo. (Adv. Course)*	E. E.
Maurer, Rolland Edward	*Madison*	M. E.
Maxon, Glenway, Jr.	*Milwaukee*	M. E.
Meisekothen, Robert John	*Madison*	E. E.
Miller, William Frederick	*Madison*	M. E.
Millspaugh, John Wheeler	*Milwaukee (Adv. Course)*	E. E.

Morris, Leslie Roslyn	*Madison*	C. E.
Morris, Victor	*Milwaukee*	E. E.
Nee, Patrick Joseph	*Madison*	E. E.
O'Connor, Arthur James	*Milwaukee*	E. E.
Ofstie, Harold Sigvold	*Eau Claire*	C. E.
Osterheld, Clark McKinney	*Stoughton (Adv. Course)*	E. E.
Paine, Paul Milton	*West Allis*	C. E.
Pardee, Franklin Gray	*Wausau*	Min. E.
Peirce, Walter Anderson	*Madison*	C. E.
Phinney, Sedley Hopkins	*Rochester, N. Y. (Adv. Course)*	C. E.
Powell, Archie Eisenhower	*Lake Wilson, Minn. (Adv. Course)*	E. E.
Purchas, Robert Thorsen	*Milwaukee (Adv. Course)*	E. E.
Reed, Melbourne Ovid	*Darien*	E. E.
Rekersdres, Henry	*Madison (Adv. Course)*	M. E.
Replinger, Roy Lodawick	*Madison*	E. E.
Reyes, Teofilo Ongsioko	*Bocaue, Bulacan, P. I. (Adv. Course)*	C. E.
Rosenow, Ernst Eric	*Menasha*	M. E.
Rule, Elmer Earnest	*Linden*	E. E.
Ryan, Edmund	*Madison*	E. E.
Sagen, Edward Rohr	*Centerville, S. D.*	M. E.
Schmidt, Frederick Julius	*Milwaukee*	E. E.
Schmitt, Herbert Clarence	*Milwaukee*	C. E.
Schroeder, Erich George	*Milwaukee*	C. E.
Scoles, John Calvert	*Granton (Adv. Course)*	Min. E.
Sewall, Fred Alexander	*Racine*	M. E.
Shafer, Clifford Bernard	*Muscoda*	C. E.
Smart, Orren David	*Waukesha*	M. E.
Smith, Edward King	*Beloit (Adv. Course)*	C. E.
Sperry, Carleton Dexter	*Phillips (Adv. Course)*	M. E.
Spooner, John Wright	*Abernothy, Sask., Canada*	E. E.
Steers, Leland Stanford	*Markesan*	E. E.
Stevens, Berry Thane	*Chicago, Ill.*	M. E.
Stivers, Earl Raimon	*Madison (Adv. Course)*	C. E.
Swanson, Earl Grover Leonard	*Chicago, Ill.*	C. E.
Tanghe, Edward Franklin	*Milwaukee*	C. E.
Taylor, Archibald Roger	*Barron (Adv. Course)*	E. E.
Teschan, Erhard Gilbert	*Milwaukee*	M. E.
Thomas, Edward Francis	*Pewaukee*	E. E.
Thompson, Oscar Theodore	*Kaukauna*	M. E.
Thwaites, Frederick George	*Milwaukee*	C. E.
Tolhurst, William Henry	*Madison*	E. E.
Whomes, Walter Dewit	*Madison*	E. E.
Wilmot, Lemuel Allan	*Vancouver, B. C.*	C. E.
Winterbotham, Ralph William	*Madison (Adv. Course)*	E. E.
Wynne, Thomas Neal	*Indianapolis, Ind.*	M. E.
Young, John Ward	*La Crosse*	E. E.
Youngberg, George Edward	*La Crosse*	C. E.
Zabel, Harold Frederick	*Sharon*	Ch. E.

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JUNIORS

Agazim, Michael	*Madison*	Ch. E.
Anderson, Bert Edwin	*Madison*	C. E.
Bauer, Harry Edward	*Fort Atkinson*	M. E.
Bachelder, Frank Jerome	*Madison*	C. E.
Bemis, Walter Sargent	*Chicago, Ill.*	M. E.
Berkeley, Laurence Jay	*Santa Monica, Cal.*	M. E.
Blair, Walter Frank	*Waukesha*	M. E.
Boehmer, Harold Richards	*Indianapolis, Ind.*	Ch. E.
Breckinridge, William Lewis, Jr.	*Madison*	M. E.
Burns, Thomas Stephen	*Madison*	E. E.
Canar, Alford George	*Milwaukee*	Ch. E.
Carlson, David Napoleon	*Marinette (Adv. Course)*	Ch. E.
Case, Archibald Williston	*Havana, Cuba*	C. E.
Castle, Edward Arthur	*Milwaukee*	Ch. E.
Cavanaugh, Raymond Thomas	*Madison*	C. E.
Church, William Ralph	*Danville, O.*	C. E.
Clancy, John Francis	*East Troy*	M. E.
Clayton, Hoy Benjamin	*Monroe*	C. E.
Coddington, Paul	*North Milwaukee*	M. E.
Collentine, Ralph Joseph	*Monroe*	M. E.
Connell, Edward Joseph	*Beloit (Adv. Course)*	M. E.
Conrad, Cuthbert Powell	*Madison (Adv. Course)*	C. E.
Cornish, Myron	*Oak Park, Ill.*	C. E.
Crump, Arthur Wilson	*Lake Mills*	C. E.
Cummings, Albert Edward	*St. Louis*	C. E.
Dargan, William Venuste	*Columbus*	Min. E.
Davy, Frank Joseph	*Madison*	C. E.
Dexter, Willis Edmund	*Madison (Adv. Course)*	M. E.
Doeringsfeld, Harry August	*Boscobel (Adv. Course)*	C. E.
Doolittle, Lawrence Harger	*Madison*	C. E.
Downey, Frank Edward	*Milwaukee*	M. E.
Drath, Wilfred Herman	*Kenosha*	C. E.
Edwards, John Boardman	*Milwaukee*	Ch. E.
Elderkin, Paul Nathan	*Madison*	E. E.
Eldred, George	*Berlin*	C. E.
Eleazarian, Aram Moses	*Madison*	E. E.
Ellis, Francis Cutler	*Madison*	E. E.
Fletcher, Freeman Douglas	*Morrison, Ill.*	M. E.
Fulton, Arthur Davis	*Baltimore, Md. (Adv. Course)*	M. E.
Gesell, Walter Bertram	*La Crosse*	M. E.
Gillet, James Monroe	*Madison*	Ch. E.
Goldie, William Bradshaw	*Milwaukee*	E. E.
Goldsmith, Elmer Le Grand	*Milwaukee (Adv. Course)*	E. E.
Goss, William Azell	*Milwaukee*	C. E.
Grambsch, Rinold Herman	*Madison*	E. E.

Gross, John Frederick	*Baltimore, Md. (Adv. Course)*	M. E.
Hanson, Allen Henry	*Cambridge*	M. E.
Hardin, Ray Stephen	*Indianola, Ia.*	E. E.
Harris, John Wallis	*Waupun*	C. E.
Heider, Harvey Banderob	*Oshkosh*	M. E.
Heineman, Warren Fred	*Sheboygan*	M. E.
Helfrecht, Aaron John	*Germania, Pa.*	Ch. E.
Henry, Levi Lithgow	*Wonewoc (Adv. Course)*	M. E.
Henze, Henry Carl	*Iron Mountain, Mich.*	C. E.
Herried, Edwin Sandford	*Madison*	M. E.
Hersch, Harry	*Milwaukee*	E. E.
Herthel, Eugene Coerper	*Milwaukee*	Ch. E.
Heyn, Herman Bunsen	*Milwaukee*	Ch. E.
Higley, Harvey Van Zandt	*Glen Ellyn, Ill.*	Ch. E.
Hills, Ralph Winchester	*Madison*	M. E.
Hodson, Frederick Weed	*Chicago, Ill.*	Min. E.
Holtum, Alfred	*Clinton*	M. E.
Hughes, Robert William	*Madison*	Min. E.
Innes, William Wallace	*Cincinnati, O.*	C. E.
Janda, Harold Frederick	*Portage (Adv. Course)*	C. E.
Johnson, Edward George	*Fisk*	E. E.
Jorstad, Floyd Oswald	*Cameron*	E. E.
Kamantigue, Gonzola Manela	*Imus Cavite, P. I.*	E. E.
Keese, Richard Abbot	*Los Angeles, Cal.*	M. E.
Kemen, Willard Edwin	*Milwaukee*	M. E.
Kidder, Philip Evans	*Middleton*	E. E.
Kile, Roy Brook	*Chippewa Falls*	E. E.
Klotz, Charles Harry	*Milwaukee*	M. E.
Knudsen, Barney	*Algoma*	Min. E.
Krueger, Forrest Julius	*Madison*	E. E.
Lange, Ernest Otto	*Fond du Lac*	E. E.
Leaper, Clarence	*Green Bay*	M. E.
Loeb, Louis Sigmund	*Mexico City, Mexico*	Ch. E.
Loerpabel, William Harrison	*Nome, Alaska*	Min. E.
Loynes, Owen Hayward	*Fontana (Adv. Course)*	E. E.
McAteer, James Robert	*Oconomowoc*	C. E.
MacCarthy, F. Harrison	*Poplar Grove (Adv. Course)*	Ch. E.
McKinney, John O.	*Madison*	M. E.
Macnish, George Gaylord	*Stevens Point*	E. E.
Margarida, Fernando	*Rio Piedras, Porto Rico*	Ch. E.
Margarida, José	*Rio Piedras, Porto Rico*	M. E.
Marshall, Harry Alexander	*East Troy*	C. E.
Maucini, Joseph John	*Turtle Lake*	C. E.
Maurer, Claude Norman	*La Crosse*	M. E.
Michel, Rudolph	*Baltimore (Adv. Course)*	M. E.
Miller, James Justin	*Muskogee, Okla.*	E. E.
Montgomery, Jay Gordon	*Chinook, Mont.*	C. E.
Moon, Herbert Jacob	*Burlington, Ia. (Adv. Course)*	Ch. E.

Moore, Roger Emmett	*Madison*	C. E.
Nance, Allen Ellsworth	*Monroe*	C. E.
Nelson, Hubert	*Keokuk, Ia.*	Ch. E.
Newell, Arthur	*Ashland, Mont.*	Min. E.
Nicholson, Charles Henry	*Madison*	Ch. E.
Niesen, Hugo Paul	*Carbondale, Pa.*	C. E.
Norris, Ralph Forbush	*Milwaukee*	Ch. E.
Oldenburg, Harry Frank	*Milwaukee*	M. E.
Olson, Clifton Anton	*Cornell (Adv. Course)*	E. E.
Pallansch, Rollin Anthony	*Fredonia*	Min. E.
Parker, Horton Rudolf	*Plasterco, Va.*	Ch. E.
Parlett, Raymond Coleman	*Baltimore, Md. (Adv. Course)*	M. E.
Pessoa, Hector Barnsley	*St. Paulo, Brazil*	E. E.
Petermann, Hans August	*Milwaukee*	C. E.
Popelka, Charles Jerry	*Racine*	C. E.
Poston, Virgil	*Bonne Terre, Mo. (Adv. Course)*	E. E.
Raube, William Carl	*Waupun*	E. E
Redfield, Frank O.	*Stevens Point*	C. E.
Reed, John Willis	*Milwaukee*	E. E.
Reuter, Louis Frederick, Jr.	*Milwaukee*	C. E.
Ritter, Ferdinand Theodore	*St. Louis, Mo.*	E. E.
Rockett, Louis Charles	*Milwaukee*	C. E.
Rogers, Lester Cushing	*Oak Park, Ill.*	C. E.
Roth, Sam Irving	*Milwaukee*	M. E.
Rusch, Herbert William August	*Portage*	E. E.
Saigh, Nicholas Abraham	*Janesville*	C. E.
Salerno, Joan	*Sao Paulo, Brazil*	E. E.
Salmon, Wallis Samuel	*Mineral Point*	E. E
Schindler, Donald Franklin	*Brooklyn, N. Y.*	Min. E.
Schmid, Anton Roman	*Milwaukee*	Ch. E.
Seelye, Seth Heness	*Daytona, Fla.*	C. E.
Sipp, Edward Arden	*Watertoun*	E. E.
Smith, Russell Gilman	*Chicago, Ill.*	M. E.
Squier, Samuel Harvey	*Milwaukee*	M. E.
Standish, Miles Everette	*South Milwaukee*	E. E
Stearns, Harry Carpenter	*Racine*	M. E.
Stiemke, Walter Hermann	*Watertown*	M. E.
Stimson, Paul Reeve	*Appleton*	Ch E.
Stirn, Alfred Julius	*Milwaukee*	Ch. E.
Stone, Carrington Harlow	*Chicago, Ill.*	E. E.
Strand, Loyd Mable	*Madison*	E. E.
Su, Kan	*Kwangsi, China (Adv. Course)*	C. E.
Sweet, Ben Frank	*Fond du Lac*	M. E.
Tashjian, Hagop Edward	*Madison*	C. E.
Taylor, George Herbert	*Chicago, Ill.*	M. E.
Thompson, Merville Spoor	*Janesville*	Ch. E.
Thompson, Norman Burr	*Janesville*	Ch. E.

Tifft, Thomas De Colon	*Wauwatosa*	M. E.
Todd, Walter Stanley	*Madison*	C. E.
Trantin, Jacob, Jr.	*Madison*	Ch. E.
Watzke, Gustave Hugo	*Madison*	Ch. E.
Webster, Paul Fred	*Chicago, Ill. (Adv. Course)*	Ch. E.
Wells, Grant Robert	*Oakfield*	E. E.
Wesle, Herbert William	*Medford*	C. E.
Weymouth, Claude Raymond	*Madison*	C. E.
Wheeler, Charles Edward	*Milwaukee*	Min. E.
Wheeler, Leo Richard	*Geneva, Ill.*	C. E.
Wilder, Perry Wadsworth	*Madison*	E. E.
Williams, Donald Howard	*Bangor, Mich.*	C. E.
Williams, Louis Howell	*Stoughton*	M. E.
Williams, Verle Byron	*Madison (Adv. Course)*	E. E.
Wilterding, Forest Eugene	*Wausau*	C. E.
Zackow, Clarence	*Clintonville*	M. E.

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SOPHOMORES

Almon, Grover Cleveland	*Weyauwega*	M. E.
Anderton, Harry Charles	*Dayton, O.*	M. E.
Andrae, George Henry Joseph	*Milwaukee*	E. E.
Andrew, Edwin Lee	*Tacoma, Wash.*	E. E.
Arpin, Edmund Philip, Jr.	*Grand Rapids*	Min. E.
Ballard, George Lyle	*Beloit*	E. E.
Barnett, Nelson Dater	*Sharon*	M. E.
Bendt, Ernest Rudolph	*Kenosha*	M. E.
Bennett, Thomas Edmund	*Chemulpo, Corea*	E. E.
Berg, Theodore Melvin	*Madison*	M. E.
Bergmann, Henry Ernst	*Milwaukee*	E. E.
Blanding, George Harvey	*Madison*	Min. E.
Blomeyer, Harris Pheifer	*Chattanooga, Tenn.*	Ch. E.
Booth, George Edward	*New Richmond*	E. E.
Bothum, George Gilbert	*Chicago, Ill.*	C. E.
Brockhausen, Edward Erp	*Freeport, Ill.*	M. E.
Brown, Thomas Coburn	*Socoro, New Mexico*	Min. E.
Bruce, Warren Richardson	*Boise, Idaho*	M. E.
Buck, Howard	*Eau Claire*	C. E.
Buckmaster, Ben Stalker	*Kenosha*	M. E.
Cargill, William Wallace	*Madison*	C. E.
Carr, Maurice Tipple	*Stoughton*	E. E.
Carroll, Gerald Aloysius	*Appleton*	C. E.
Casey, Thomas Bernard	*Chicago, Ill.*	C. E.
Chapin, Huber Alva	*Winfred, S. D.*	Ch. E.
Christiansen, Clarence John	*Grand Rapids*	M. E.
Connelly, Robert Michael	*Green Bay*	C. E.
Cooley, Edgerton Cooper	*Ishpeming, Mich.*	C. E.
Cornell, Elmer Theodore	*Sheboygan*	E. E.
Coughlin, Robert Jerry	*Baraboo*	E. E.
Coxhead, Harry Burrows	*Buffalo, N. Y.*	E. E.

Damm, Walter Noel	*Lancaster (Adv. Course)*	C. E.
Davy, George Francis Joseph	*Madison*	C. E.
Dehler, Rudolph Walter	*Helena, Mont.*	E. E.
Dodge, Chester Carlton	*Devils Lake, N. D.*	E. E.
Ducat, Arthur Francis	*Milwaukee*	Ch. E.
Edwards, Philip John	*Medford*	C. E.
Edwards, Seren Harold	*Des Moines, Ia.*	C. E.
Egbert, Paul Spier	*La Crosse*	C. E.
Ehrgott, Karl	*Milwaukee*	E. E.
Eisele, Lewis George	*Iron Mountain, Mich.*	E. E.
Ewell, Hewlings Stockton	*Baltimore, Md.*	C. E.
Fahey, Seeley Bernard	*Madison*	C. E.
Falge, Robert Newton	*Manitowoc*	E. E.
Farrell, James Howard	*Superior*	Ch. E.
Feiler, William Revel	*Evanston, Ill.*	M. E.
Fisher, Erwin William	*Mondovi*	C. E.
Fiske, George Kendrick	*Waterloo*	C. E.
Foeste, Arthur Bruno	*Sheboygan*	E. E.
Foulkes, Thomas Robert	*Merrimack*	C. E.
Fowler, Dwight Smith	*Fond du Lac*	C. E.
Fox, Harold Whittier	*Sioux Falls, S. D.*	E. E.
Gaines, Earl Frederic	*No. Milwaukee*	C. E.
Gehring, Ray William	*Appleton*	C. E.
Gilder, Thomas Nelson	*Milwaukee*	M. E.
Girton, John Francis	*Sioux Falls, S. D.*	E. E.
Goes, Frederic Theodore	*Milwaukee*	M. E.
Gollmar, Herbert Arthur	*Baraboo*	Ch. E.
Green, William Carl	*Green Bay*	C. E.
Grimm, John Edward Jr.	*Dayton, O.*	E. E.
Grosskopf, John William	*Pella*	M. E.
Haggart, William Henry Robinson	*Larson, N. D.*	C. E.
Hallock, Neil Carey	*Madison*	E. E.
Hansen, Waldo Gravdale	*Beloit*	M. E.
Harper, John Fletcher	*Milwaukee*	E. E.
Harvey, William Dow	*Aurora, Ill.*	M. E.
Hay, Henry Harshaw	*Stevens Point*	M. E.
Heins, William Hugo	*Wittenberg*	C. E.
Henkel, Carl Albert William	*Mason City, Ia.*	C. E.
Henpel, George John	*Milwaukee*	C. E.
Henny, David	*Portland, Ore.*	C. E.
Henry, Archibald Edgar	*Jefferson*	E. E.
Holmes, Charles Arthur	*Trempealeau*	C. E.
Holmquist Walter Napoleon	*Washburn*	C. E.
Howson, Arthur Wessels	*Madison*	C. E.
Isenberg, Ernest August Carl	*Baraboo*	E. E.
Jameson, Philip Alexander	*Ogdensburg, N. Y. (Adv. Course)*	E. E.
Jens, Roland	*New Holstein*	M. E.
Jewett, Clarence Gardner	*Plymouth*	E. E.
Johnson, Frank, Jr.	*Lake Geneva (Adv. Course)*	C. E.

Johnson, John Franklin	*Madison*	E. E.
Jones, Walter Lewis	*Marinette*	E. E.
Kaumheimer, Edwin Andrew	*Milwaukee*	E. E.
Kehrmann, Rolla	*Benton*	Min. E.
Kernan, Thomas Harold	*Algoma*	Min. E.
Khemka, Ram Kumar	*Calcutta, Ind.*	E. E.
Lewis, Charles McLeod	*Milwaukee*	M. E.
Lindow, Rudolph Frederick	*Elkhorn*	E. E.
Lohr, Freeman Doolittle	*Orange City, Ia.*	Ch. E.
Lowry, Frank Butler	*Colfax*	C. E.
Lund, Carl Howard	*Racine*	Ch. E.
MacArthur, Hugh	*Superior*	M. E.
McCaughey, James Harold	*De Soto*	C. E.
McGilvary, Lewis Paton	*Madison*	E. E.
Margenan, Milo Louis	*Ashland*	E. E.
Mayfield, John Preston	*Washington, D. C.*	M. E.
Miller, Henry Rudolph	*Iron Mountain, Mich.*	M. E.
Morrell, Robert Kenneth	*Superior*	C. E.
Nelson, Louie Fred	*Clinton*	C. E.
Neubert, Armin Karl, Jr.	*Minneapolis, Minn.*	E. E.
Nordmeyer, Carl Louis	*St. Louis, Mo.*	M. E.
Nordness, Elmer Lynn	*Madison*	C. E.
Olson, William Arthur	*Colfax*	E. E.
Orr, Roswell Park	*Mt. Hope*	E. E.
Patterson, William Daryl	*Evansville*	E. E.
Phelps, Raymond Adelbert	*Beloit*	C. E.
Plate, Harry Victor	*Milwaukee*	M. E.
Pollak, Harry Charles	*Milwaukee*	E. E.
Porter, Raymond Edwin	*Milwaukee*	M. E.
Pott, Herman Theodore	*Madison*	C. E.
Rau, Harold Lippert	*Milwaukee*	Min. E.
ReQua, Eugene Miner	*Sioux Falls, S. D.*	C. E.
Richard, Frank Thomas	*Washington, D. C.*	M. E.
Richardson, Glenn Carrol	*Milwaukee*	M. E.
Ritter, Louis Stair	*Evanston, Ill.*	C. E.
Roadhouse, Wilbur	*Beloit*	E. E.
Robinson, Donald Brandt	*St. Paul, Minn.*	E. E.
Rodriguez, Sumner	*Friendship*	M. E.
Rowe, Alvin Osborne	*Houghton, Mich.*	E. E.
Royce, Wilfred Alexis	*Lead, S. D.*	E. E.
Schad, James Albert	*Baltimore, Md. (Adv. Course)*	C. E.
Schustedt, Frederick Nathaniel	*Madison*	C. E.
Siggers, Philip Edward	*Washington, D. C.*	E. E.
Smith, Donald Stevens	*Madison*	E. E.
Spayde, Keith Crawford	*Ft. Dodge, Ia.*	C. E.
Stern, Maurice Leopold	*Superior*	Ch. E.
Steuber, Milton Carl	*Madison*	C. E.
Stookey, George Chapman	*La Grange, Ill.*	M. E.
Stuart, Charles Whitman	*Monroe*	M. E.

Suhm, Clarence Falk	*Milwaukee*	Ch. E.
Swetting, Joseph Rodney	*Berlin*	M. E.
Tabor, Henry Whitney	*St. Ignatius, Mont.*	C. E.
Tanner, William Raymond	*Milwaukee*	Ch. E.
Taussig, Warren Allen	*Kirkwood, Mo.*	M. E.
Thomas, Roy Enoch	*Butte, Mont.*	M. E.
Thomas, Rush Elmer	*Madison (Adv. Course)*	C. E.
Thwaites, Howard	*Milwaukee*	C. E.
Umbreit, Stanton	*Milwaukee*	Ch. E.
Vail, Samuel Crane	*Chicago, Ill.*	M. E.
Walthers, William Kearney	*Milwaukee*	E. E.
Weaver, Warren	*Madison*	C. E.
Weber, Joseph Aloys	*Appleton*	M. E.
Whipple, Newton Dean	*Elkhorn*	Ch. E.
White, Richard Joseph	*Algoma*	C. E.
Wilkinson, John Butler	*Milwaukee*	M. E.
Williams, Norman Paul	*Madison*	M. E.
Willmore, Charles Blake	*Chicago, Ill.*	Ch. E.
Wing, Sherwood Elsworth	*La Crosse*	M. E.
Wise, John Edwin	*Durand*	E. E.
Wolfgram, Irving Fred	*Milwaukee*	Ch. E.
Wood, Raymond	*Waupun*	E. E.
Woodson, James Pettigrew	*St. Louis, Mo. (Adv. Course)*	C. E.
Wyatt, Ralph Moore	*Fond du Lac*	E. E.
Yunger, Joseph William	*Ashland*	E. E.
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FRESHMEN

Affleck, Herbert John	*Muscoda*
Akenhead, James Earl	*Sparta*
Anderson, Laurence Winchester	*Milwaukee*
Ausman, Ervin Amos	*Eau Claire*
Bagemihl, Walter Michael	*Milwaukee*
Barry, Donald Benedict	*Chilton*
Bautz, Marshall	*Milwaukee*
Baxter, Charles Frederick	*Montfort*
Baxter, Robert Addison	*Kansas City, Mo.*
Behnisch, Erwin Arthur	*Cedarburg*
Bendfelt, Herbert Albert	*Chicago, Ill.*
Berteling, Charles Neill	*South Bend, Ind.*
Bigford, Thomas	*Manawa*
Black, Arthur James	*Kaukauna*
Blewett, William Henry	*Cassville*
Boissier, Arthur Harvey Cromb	*Lake Geneva*
Bostwick, George Laurence	*Eau Claire*
Breske, John Fred	*Portland, Ore.*
Brock, Harold William	*Zion City, Ill.*
Brown, Barry Ashmun	*Neenah*
Brown, Clifton Martin	*Madison*
Brown, Herbert Henry	*Milwaukee*

Brown, Stewart Chamberlin	*Milwaukee*
Buchanan, Perry Baker	*Winnetka, Ill.*
Buchholtz, Arthur Otto Frederick	*Winona, Minn.*
Buffum, John Sayles	*East Aurora, N. Y.*
Bullis, Harry Amos	*Council Bluffs, Ia.*
Burns, Harris Eugene	*Jonesboro, Ark.*
Burns, Harry William	*Oconto*
Campbell, Jay Michael	*Edgerton*
Carlson, Thorwald Alexander	*East Helena, Mont.*
Casberg, Angus Milton	*La Crosse*
Case, Percival Fuller	*Racine*
Clark, Kenneth Dyer	*Chicago, Ill.*
Clausen, Harold Flint	*Neenah*
Clausing, Benjamin J.	*Grafton*
Cole, Everett Leland	*Hollis, Kansas*
Connit, Fred Lyman	*Milwaukee*
Cooper, Clarence Edward	*Ashland*
Cotter, Chester	*Rowley, Mass.*
Crowley, John Raymond	*Davenport, Ia.*
Dahlman, Arthur Frederick	*Sheboygan*
Davidson, Arthur Gilles	*Casper, Wyo.*
DeLong, Russell Earl	*Appleton*
Deylitz, Paul Ludwig	*Muskegon, Mich.*
Dickson, Hunter Adam	*Chicago Ill.*
Divoll, James Don	*Sparta*
Dobbratz, Walter John	*Milwaukee*
Douglas, Harry Merrill	*Aurora, Ill.*
Drotning, Henry Orsamus	*Stoughton*
Duket, Alexander James	*Marinette*
Edwards, Leslie	*Cleveland, O.*
Elder, Charles Birge	*Keokuk, Ia.*
Ellenson, Richard John	*Superior*
Elliott, Walter Alfred	*Winnipeg, Can.*
Ellison, Ellwood Charles	*Fond du Lac*
Ellsworth, Elmer Dale	*Mineral Point*
Endres, Otto	*La Crosse*
Engelke, LeRoy Jerome	*Ashland*
Evans, Ralph Wallace	*Cumberland*
Evans, Wilfred	*Madison*
Fanta, Erwin Krainick	*Manitowoc*
Felland, Wynter Martin	*Madison*
Fellows, Harrison Edward	*Racine*
Filtzer, Robert Louis	*Milwaukee*
Franklin, Clarence Edmund	*Pocatello, Idaho*
Fratt, Charles Diller, Jr.	*Everett, Wash.*
Fried, Dan Gustav	*Merrill*
Galvin, Malcolm Errett	*Glendive, Mont.*
Garis, Leo Douthit	*Williams Bay*
Gates, Leonard Oscar	*Clinton*

Gedge, Frederick Charles, Jr.	*Waukegon, Ill.*
Gefke, Jerome Henry	*Windsor*
Geisse, John Harlin	*Fond du Lac*
Gerhardt, Fred Peter	*Milwaukee*
Gesell, Albert Henry	*Two Rivers*
Gevers, Walter Charles	*Waterloo*
Gill, Terence Alister	*Chicago, Ill.*
Giryotas, Walter Joseph	*Madison*
Glass, Elwyn C.	*Inkster, N. D.*
Gloger, William Hugo	*Watertown*
Gockel, Arthur Philip	*Cleveland, O.*
Goldammer, Charles James	*Elkhart Lake*
Gould, Edwin Fish	*Kansas City, Mo.*
Gould, Stephen Grover	*Kansas City, Mo.*
Gould, Sydney Ward	*Canton, O.*
Gower, Arthur William	*Chippewa Falls*
Graff, DeLorme Donald	*Elkhorn*
Grant, Eugene Lodewick	*Chicago, Ill.*
Grant, Ralph Anderson	*Milwaukee*
Gratiot, Edward Collins	*Shullsburg*
Grebel, Leslie Charles	*Green Bay*
Green, John Seymour	*Morrison, Ill.*
Gregg, Walter Hendrick	*Madison*
Gregson, William Fuller	*Chicago, Ill.*
Griem, Harvey	*New Holstein*
Grubb, Walter Frank	*Stanley*
Gruetzmacker, Walter John	*Burnett*
Hackett, Carrol Eugene	*North Freedom*
Hagen, Oscar Edwin	*Stoughton*
Harloff, Otto Paul	*Madison*
Hartung, Raymond Clarence	*Appleton*
Harvey, Eugene Jairus	*Chicago, Ill.*
Hay, Donald Leith	*Stevens Point*
Hebenstreit, Austin Joseph	*Shullsburg*
Heck, Otto Wenzel	*Kewaunee*
Henderson, Burnie Oliver	*Eau Claire*
High, Carl Frederick	*New Washington, O.*
Hill, Edgar Rice	*Chicago, Ill.*
Holmes, Harold Frederick	*Trempealeau*
Hooper, Noal James	*Houghton, Mich.*
Hoppe, Alfred George	*Milwaukee*
Houghland, Glen Sanford	*Madison*
Hughes, Owain John	*Watertown*
Ilett, Edward Wilson	*La Grange, Ill.*
Jakubke, Arthur Robert	*Milwaukee*
Jehle, Carl Winterfield	*Elgin, Ill.*
Jensen, Francis Field	*Madison*
Johnson, Andrew	*Washburn*
Johnson, Clarence Elmer	*Mankato, Minn.*
Johnson, Elmer Jay	*Merrillan*

Johnson, Ralph Burbank	*Lincoln, Neb.*
Johnson, Robert Colton	*Madison*
Johnson, William Spencer	*Beloit*
Jones, Victor Hull	*Mankota, Minn.*
Kachelhoffer, Fred George	*Ackley, Ia.*
Kaffenberger, Leonard Emil	*Red Bud, Ill.*
Kartheiser, Leo Henry	*Chilton*
Kartheiser, William Nicholas	*Chilton*
Kauffman, Clark Emory	*Chicago, Ill.*
Kelty, Asher Esais	*Rice Lake*
Keuchel, John Nicholas	*Lake Geneva*
King, Loy Hyvesto	*Hurley*
Kitzman, Walter Leslie	*Eau Claire*
Knott, Richard Francis	*Marseilles, Ill.*
Knudstad, Amos Lee	*Argyle*
Kochersperger, Jerome	*Chicago, Ill.*
Krenz, Louis George	*Menomonie, Mich.*
Kurtz, Edwin Bernard	*Cedarburg*
Lallana, Ciriaco Y. Llamado	*Caridad, P. I.*
Lane, Richard Kelvin	*Dodgeville*
Larson, Clarence Marcus	*Eau Claire*
Lassfolk, Oscar Earl	*Madison*
Lawson, Stuart Condit	*East Orange, N. J.*
Lethen, Theodore Hubert	*Chicago, Ill.*
Leven, Maurice	*Fond du Lac*
Lins, Edward Anthony	*Spring Green*
Lonsdirf, Arthur Joseph	*Manitowoc*
Loud, August Blanke	*St. Louis, Mo.*
Ludden, Frederick Vivian	*Mineral Point*
Ludden, Homer Jameson	*Mineral Point*
Luetscher, Harold Melchior	*Madison*
McCallum, Verni Ernest	*Rowan, Ia.*
McDowell, Lewis Bain Adair	*St. Joseph, Mich.*
McHugh, Keith Stratton	*Ft. Collins, Colo.*
McManus, James Francis	*Chicago, Ill.*
McMullen, Cleve A.	*Dodgeville*
Mackey, Walter Curriden	*Waukegan, Ill.*
Mackowski, John Edward	*Princeton*
Martin, Byron Harold	*Delavan*
Martins, Romen Esteves	*Santos, Brazil*
Maurere, Herbert Fred	*Sheboygan*
Mead, Harold Washburn	*Madison*
Mendelsohn, Isador William	*Washington, D. C.*
Menke, Thomas Henry	*Glendive, Mont.*
Messmer, Robert Frederick	*Milwaukee*
Meyers, Harry Carlyle	*Milwaukee*
Milenz, Harold Frederick	*Milwaukee*
Miller, Ara James	*Ashland*
Miller, Edmund	*Milwaukee*
Miller, George Ellsworth, Jr.	*Fairmont, W. Va.*

Moe, Harold Irving	*Monroe*
Mommsen, Manerd Carl	*Milwaukee*
Mosher, Frank Bartlett	*New Richmond*
Myers, Charles Albert	*Madison*
Nash, Lucius Byron	*Eau Claire*
Nelles, Carl Anton	*Madison, S. D.*
Nelson, Harvey Terry	*Madison*
Nelson, Leslie Vernon	*Houghton, Mich.*
Norris, Charles Brazer	*Milwaukee*
Norton, Paul Thornley	*Columbus, O.*
Oakey, Warren	*Madison*
Oestreich, Carl Ralph	*Fredonia*
Parmley, Dean Bigelow	*Ogden, Utah*
Patterson, Robert Paul	*Luck*
Pergande, Arthur George	*Cedarburg*
Pesetzki, Samuel Joseph	*St. Louis, Mo.*
Pollack, Joseph	*Milwaukee*
Potter, Edward Palmer	*Milwaukee*
Powers, Morton Aloysius	*Fond du Lac*
Pritchard, Owen John	*Fond du Lac*
Quast, Carl Robert	*Milwaukee*
Ramsay, Ralph Edwin	*Beloit*
Rau, Charley Alexander	*Madison*
Reinhardt, Joseph Albert	*Madison*
ReQua, Frederick Livingston	*Chicago, Ill.*
Rex, George Reginald	*Texarkana, Ark.*
Rich, Clarence Eugene	*Lancaster*
Roberts, Ernest Edwin	*Indianapolis, Ind.*
Roddewig, Gilbert	*Davenport, Ia.*
Rosenberg, Edwin Herbert	*Madison*
Ryan, William Denis	*So. Kaukauna*
Saul, Willis	*De Pere*
Schade, Clayman Grimshaw	*Cudahy*
Schlosser, William Clarence	*Madison*
Schmid, John Michael	*Cudahy*
Schrom, Theodore James	*Rockford, Ill.*
Schubring, Albert Howard	*So. Milwaukee*
Scott, Allison Fendale Hannay	*Washington, D. C.*
Sinnen, Fred Emil	*Racine*
Sizer, Frank Milton	*Dos Cabezas, Ariz.*
Smart, Alfred Hughes	*Wild Rose*
Smith, Merton Walter	*Elroy*
Souza, Jacy Tolentino De	*Santos, Brazil*
Steinbrenner, Harlow Pierre	*Chicago, Ill.*
Steinhauer, Raymond Frederick	*Madison*
Steinle, Clinton Rolland	*Madison*
Steward, David Ogilvie	*West De Pere*
Storer, Richard Milton	*Des Moines, Ia.*
Suhm, Herbert Ralph	*Milwaukee*
Suhr, Lewis Delmar	*Chicago, Ill.*

Suter, James	*Galesville*	
Swenholt, Casper	*Madison*	
Torgeson, Oscar Winfield	*Madison*	
Townsend, John Banes	*St. Joseph, Mo.*	
Truran, Walter Weatherby	*Pierre, S. D.*	
Tyrrell, Donald William	*Lake Geneva*	
Utegaard, Thomas	*Eau Claire*	
Vallette, Vincent Jewell	*Goshen, Ind.*	
Van Patten, Everett Hoxie	*Evansville*	
Vigneron, Eugene Morgan	*Chicago, Ill.*	
Wadsworth, Randolph Lincoln	*Ft. Thomas, Ky.*	
Wagner, Melvin Ferdinand	*Haven*	
Wahle, Walter Edwin	*Davenport, Ia.*	
Wall, James Joseph	*Eau Claire*	
Ward, Cyril	*Boone, Ia.*	
Webb, Loren George	*Fort Atkinson*	
Webb, Walter Ray	*Sioux City, Ia.*	
Wechselberg, Philip Cheyne	*Milwaukee*	
Welk, Harold Emil	*Manitowoc*	
Westerman, Rodolpho Gustavo	*Parana, Brazil*	
Wheeler, Robert	*Ashland*	
Whitmore, Lester Leonard	*Menasha*	
Wilcox, Burr Curtis	*Superior*	
Wilks, Francis Isaac	*Lenwood, N. Y.*	
Williams, Ralph Stanley	*Madison*	
Wilson, Stuart James	*Chicago, Ill.*	
Wood, John Morgan	*Albany*	
Wood, Walter Clarke	*Albany*	
Yates, John Chester	*Milwaukee*	
Zahorik, Peter Anton	*Milwaukee*	—251

ADULT SPECIALS

Babush, Joseph Samuel	*Milwaukee*		Freshman
Bell, Herbert Lorns	*Milwaukee*	M. E.,	Sophomore
Brill, Alfred	*Milwaukee*	C. E.,	Sophomore
Casberg, Carl Herbert	*La Crosse*	M. E.,	Sophomore
Colbeck, Frederick William	*Superior*	M. E,,	Junior
Danielson, Walter Adolph	*North Milwaukee*		Freshman
Fieweger, Thomas Edward	*Oshkosh*	C. E.,	Junior
Gillis, Frederick Woodbury	*Superior*	M. E.,	Sophomore
Goff, Harold Wheeler	*Eau Claire*		Freshman
Hall, Melville Cooper	*New Paltz, N. Y.*	C. E.,	Junior
Hameister, Victor Carl	*Cleveland, O.*	Ch. E.	Sophomore
Heuser, John Ulrich	*Milwaukee*	E. E.,	Junior
Jenkins, William Franklin	*La Grange, Ill.*		Freshman
Lang, Hiram Arthur	*Chippewa Falls*	C. E.,	Junior
Lorig, Edwin Theodore	*So. Milwaukee*	M. E..	Junior
Pederson, John Peter	*So. Milwaukee*	M. E.,	Sophomore

Petersen, Robert Peter	*Askov, Minn. (Adv. Course)*	C. E., Sophomore
Schiess, Martin Ernest	*Ypsilanti, N. D.*	Freshman
Skirm, Joseph Gaskill	*Madison*	Min. E., Sophomore
Steller, Otto Albert	*Milwaukee (Adv. Course)*	C. E. Sophomore
Wertheim, Ferd Eliel	*Madison*	Freshman
Whittemore, Kenneth Stoddard	*East Aurora, N. Y.*	Freshman
Wieben, Fred Henry	*Milwaukee*	Freshman

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LAW SCHOOL

THIRD YEAR

Aberg, William J. P., B. A.	*Madison*
Anderson, Alvin, B. A.	*Windsor*
Beach, Paul Mell	*Racine*
Brewer, Francis Leo	*Richland Center*
Buehler, Emil	*Alma*
Buscheck, Alfred Joseph, B. A. g	*Manitowoc*
Clarke, Bruce Walbrath	*Madison*
Cleary, George Edward, B. A.	*Platteville*
Daley, Frank Aloysius, B. A.	*Madison*
Deming, Wayne Edgar, B. A.	*Marshfield*
Dietze, Carl Edgar, B. A.	*Mayville*
Duckart, Henry Francis	*Cooperstown*
Edwards, Henry Patrick, B. A.	*Dallas, Texas*
Goggins, George Matthew	*Chilton*
Haugan, Clarence Larnard	*Elkhorn*
Jenner, George Herbert Austin, B. A.	*Madison*
Johnson, Herbert Theodore	*Madison*
Kolinsky, Peter Charles, B. A.	*Racine*
Lapham, Olene	*Lake Beulah*
Lippert, George Wolfe	*Jefferson*
Meissner, Harry Victor, B. A.	*Milwaukee*
Meuer, William Joseph, B. A. g	*Madison*
Meyer, Bernard Edward	*Marion*
Meyer, Morris	*Milwaukee*
Meyers, Erwin Aaron, B. A. g	*Evansville*
Nye, James Gordon	*Madison*
Parmentier, Jules Merrill ls	*Green Bay*
Pellette, Arthur Jay	*Madison*
Petersen, Arnold Richard	*Hudson*
Porter, Philip Howe, B. A.	*Madison*
Pullen, Jones Spencer, B. A.	*Evansville*
Reiser, Robert Mathew	*Madison*
Richmond, Adam, B. A.	*Madison*
Riley, Thomas Edward	*Altoona*
Rothstein, Jacob Solomon	*Milwaukee*

Rudow, Henry William	*River Falls*	
Ryan, Fred Hall	*Chippewa Falls*	
Thomson, Harold Page, B. A.	*Madison*	
Whitcomb, Earle Howard	*River Falls*	—39

SECOND YEAR

Beck, Thorwald Martin, B. A.	*Racine*	
Buckley, John Francis	*Waukesha*	
Cunningham, George Roger, B. A.	*Janesville*	
Dittmer, Winfred Cyril	*Seymour*	
Duquaine, Edward Maxmillian	*Green Bay*	
Gallagher, Joseph Thomas	*Racine*	
George, Leo Byron, B. A.	*Madison*	
Harvey, Alfred Spearman	*Milwaukee*	
Hawley, James Henry Jr.	*Boise, Idaho*	
Horner, Herbert Frank, B. A.	*Finley, N. D.*	
Janisch, Harold Peter, B. A. g	*Waterloo*	
Jolley, Albert Rembrandt	*Whitewater*	
Karcher, Nettie Elizabeth	*Burlington*	
Koelsch, Charles Clay	*Boise, Idaho*	
Kuenzli, Clarence Raymond	*Milwaukee*	
Lake, Earl Garon	*Madison*	
Lewis, Ritchie David	*Sun Prairie*	
Lewis, Theodore Gorman, B. A.	*Madison*	
McKay, John Gordon, B. A. g	*Madison*	
MacQuarrie, Archibald Ernest	*Oshkosh*	
Martin, Patrick Henry, Jr.	*Madison*	
Melzer, Edgar, B. A.	*Watertown*	
Reed, Nathan William, B. A.	*Rosendale*	
Rhyner, Oscar Bertrand	*Oshkosh*	
Samp, Edward Joseph, B. A.	*Cecil*	
Sells, Jackson Johnson	*Madison*	
Sletteland, Perry Arthur	*Pigeon Falls*	
Stearns, Perry Jay, B. A.	*Milwaukee*	
Stoltze, Norris Sanborn	*Madison*	
Story, Harold Willis, B. A.	*Milwaukee*	
Stosick, Edmund Charles	*Milwaukee*	
Thomann, Albert Jacob	*Madison*	
Wahl, Frederick Rice, B. A.	*Milwaukee*	
Walter, Charles Bemlar	*Gladbrook, Ia.*	
Webster, William Brennan B. A. g	*Hudson*	
Woodhouse, Linn Arthur	*Bloomington*	—36

FIRST YEAR

Anderson, Norman Leonard, B. A.	*Milwaukee*	
Boreson, Bradner Frank	*Beloit*	
Burke, Roy Thomas Bernard	*Madison*	
Conway, Cornelius Michael	*Elroy*	
Corrigan, Louis Francis	*Elroy*	

Crawford, John Jennings, B. A. g	*Hazel Green*
Dickens, Harold Forster	*Milwaukee*
Donaldson, Nellie King	*Racine*
Dunfield, Blanche Bourcier	*Madison*
Ely, Richard Sterling, B. A.	*Madison*
Erikson, Clarence	*Stoughton*
Fisher, Guyon Tompkins	*Minocqua*
Fordyce, John Martin	*Butternut*
Haberla, Howard Paul	*Milwaukee*
Heilman, Raymond Julius	*Oconomowoc*
Heineman, Walter Edmund	*Mauston*
Holmes, Arthur Thomas, B. A.	*La Crosse*
Homet, Roland Stevens	*Camptown, Pa.*
Horner, Louis Cowdrick	*Madison*
Hubbell, Wolcott Wood	*Madison*
Jenkins, Floyd E.	*Bangor*
Kelly, Frank Joseph	*Milwaukee*
Korf, George Franklin, Ph. B.	*Forreston, Ill.*
Larkin, Bert Leo	*Whitewater*
Leeming, John, Jr.	*Chicago, Ill.*
Luce, Roscoe Rudolph	*Platteville*
McAdams, Fred Charles	*Lafayette, Ind.*
Marsh, Carl James	*Madison*
Martin, William Amberg	*Middle Inlet*
Morse, Harriet Jennie, B. A.	*Racine*
Murphy, John William	*Platteville*
Newman, Harry George	*Hopedale, Mass.*
Osborn, John Searle	*Madison*
Ostrander, George Emmet	*Columbus*
Passmore, Eric William	*Milwaukee*
Phelan, Vincent Lawrence, B. A.	*Sandusky*
Powers, Earl Robert	*Sanborn, Ia.*
Proctor, Roy Harrison	*Madison*
Rademacher, Henry Stephen ls	*Milwaukee*
Reddy, Walter Francis	*Platteville*
Schmidt, Oscar William	*Milwaukee*
Shannon, Aloysius David	*Oconomowoc*
Sherman, Thomas Brodus	*Madison*
Stephens, Glenn William	*Chicago Heights, Ill.*
Stoltz, Victor Merlin	*Sechlerville*
Toomey, Edmund Galbraith	*Deer Lodge, Mont.*
Weiskopf, Arthur Adolph	*Kenosha*
Wheeler, Watson Roberts	*Randolph*
Whitcomb, Arthur Joseph	*Abrams*
White, Stuart Bernard	*Niles, Mich.*
Wilson, Charles Earl	*Warren, Ill.*
Wright, Gustave de Neven	*Fond du Lac* —52

SENIORS IN LETTERS AND SCIENCE ELECTING LAW STUDIES

Anderson, Charles Thomas	*Washington, Ia.*	
Briggs, Allan	*St. Paul, Minn.*	
Davis, Homer Allan	*La Crosse*	
Duerr, Herbert Jacob	*Wauwatosa*	
Getts, Clark Hallam	*Whitehall*	
Griffiths, Harry B.	*Harlan, Iowa*	
Hartwig, Harvey Clarence	*Milwaukee*	
Jackson, Raymond T.	*Mineral Point*	
Landau, Lloyd H.	*Milwaukee*	
McCormick, John Vincent	*Madison*	
Merkel, Harold Leland	*Milwaukee*	
Morrison, Elton Joseph, Jr.	*Chetek*	
Murphy, Henry Richard	*Beaver Dam*	
Otjen, Christian John	*Milwaukee*	
Quale, Milton Norman	*Madison*	
Richardson, Lemont Hunter	*Sheboygan Falls*	
Shanhouse, Louis J.	*Rockford, Ill.*	
Strehlow, Robert Roy	*Madison*	
Thiel, John August	*Chilton*	
White, Irvin Arnold	*Antigo*	—20

LAW SPECIALS

Bratton, Guy Grant	*Madison*	Second
Cox, Herbert Leo	*Beloit*	Second
Drake, Jacob Raleigh	*Lovington, Ill.*	First
Erickson, George D.	*Lafayette, Minn.*	Third
Evans, George Beaconsfield	*Marinette*	Third
Foote, John Joseph	*Hartford*	First
Foster, Warren Blaine	*Hurley*	Second
John, Walter Alfred	*Milwaukee*	First
Lawrie, Ida Maggie Cuthbertson	*Madison*	Third
Lobre, Hubert Willard	*Madison*	Second
Lovequest, George Howard	*Racine*	Second
Lowry, James Kerr	*Waukesha*	First
McKibbin, George Warren	*Viroqua*	First
Mathews, Joseph Penual	*Blanchardville*	First
Nelton, Earl	*Independence*	Third
Robinson, Louis John	*Milwaukee*	First
Rodolf, McKeriel	*Ft. Atkinson*	First
Siebecker, Lee La Follette	*Madison*	Second
Stewart, John James	*Marinette*	First
Walden, Edward Job	*Madison*	Third
Whipple, Herbert Eugene	*Superior*	Second
Wylie, Frederick M.	*Madison*	First
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COLLEGE OF AGRICULTURE

SENIORS

Long Course

Alexander, Arthur Hadden	*Wellesley, Mass.*
Armour, Myron Lavergne	*Mondovi*
Arpin, George Nienstedt	*Grand Rapids*
Avery, Julia Foster	*Philadelphia, Pa.*
Ayers, Ellsworth Dunham tc	*Albion*
Babcock, Frank Gordon	*Madison*
Bachhuber, Leo John	*Mayville*
Bainbridge, Archie	*Blanchardville*
Becker, Joseph Aloysius	*Hurley*
Bennett, Ralph William tc	*Waterford*
Boardman, William Clayton	*New Richmond*
Bodenbach, Cyril Robert	*Milwaukee*
Brereton, William Robert	*Madison*
Bulkley, George Spencer	*Libertyville, Ill.*
Buser, Arnold Alexander	*Madison*
Bush, George Allen	*Madison*
Butler, Robert Parker	*Madison*
Butz, Harry Noble tc	*Mazomanie*
Chapman, Clinton Joseph tc	*Darlington*
Chase, Stephen 4th	*Madison*
Cliffe, James Howard	*Germantown, Pa.*
Cohn, Abraham tc	*Madison*
Crosby, Charles Logan	*Rhinelander*
Crosby, Reynale Richardson tc	*Madison*
Cuff, Raymond Lee	*Manawa*
Culver, Howard Brasfield	*Madison*
Dillon, George Edward	*Red Oak, Ia.*
Douglas, Clayton Orville	*Oshkosh*
Fawcett, Charles Ephram	*Madison*
France, Lloyd Victor	*Platteville*
Freehoff, William Adolph	*Coon Valley*
Fuente, Jesús de la y Rodriguez	*Nadadores, Coah, Mexico*
Gibson, Obie Edward	*Platteville*
Gonyon, Harvey Le Roy	*Milwaukee*
Graf, Paul Fred tc	*Leon*
Guenther, Oscar Frederick tc	*Campbellsport*
Gunn, Reuben Veerin	*Auburndale*
Hammer, John M. tc	*Spring Valley*
Haner, Fred Jacob	*Sun Prairie*
Hanson, Joel Hjalmar	*Eau Claire*
Hayes, John Barry	*Madison*
Henning, Erwin Lloyd	*Watertown*
Hertel, Joseph Paul tc	*Chilton*

Hoppert, Ernest Herman	*Sheboygan*
Householder, Glen Monroe	*Richland Center*
Howard, Neale Frederic	*Milwaukee*
Hubbell, Wolcott Wood	*Madison*
Hubble, William Martin	*Louisville, Ky.*
Iverson, Carl	*Kenosha*
Juday, Wesley Denver	*Madison*
Kedney, Henry Steinfort	*Madison*
Kelly, Paul John	*Milwaukee*
Kemp, Ralph	*Tipton, Ind.*
Kemp, William Henry Jr. tc	*Maplewood, N. J.*
Kennedy, Martin Thomas tc	*Ashland*
Kilpatrick, Elmer James	*Belmont*
Knutson, Martin Halvor	*Ridgeway*
Lange, Raymond Charles	*Eau Claire*
Lawton, Jay Waldimir	*Viola*
Layman, Kenneth Foss	*La Grange, Ill.*
Leaper, Earl Theodore	*Green Bay*
Leguia, Jose	*New York, N. Y.*
Levy, Edmond Gustave tc	*Milwaukee*
Loos, Walter Martin	*Madison*
Lora, Armando	*Havana, Cuba*
McBride, Clarence Smith	*Oak Park, Ill.*
McConnell, Claude Howard	*Tomah*
Martin, Jay P.	*Bagley*
Mathys, John William	*Green Bay*
Meyer, Benno Walter	*Milwaukee*
Moore, George Elkington	*Madison*
Moore, Percy Warren tc	*Media, Pa.*
Mortimer, George Byron	*Chilton*
Murphy, James Henry tc	*Kewaunee*
Nathan, Edward Columbus	*Madison*
Nelson, Herbert Edward	*Corliss*
Nevens, William Barbour	*Madison*
Pan, Chu Chi	*Kwangsi, China*
Pinkerton, Fred Sylvester	*Waupaca*
Potgieter, Dietlof Siegfried Mare	*Transvaal, So. Africa*
Raitt, John Archibald	*Seattle, Wash.*
Rasmusson, Walter Edwin	*Hammond*
Richards, Clarke Arno	*Madison*
Ritchart, Roy Cecil	*New Lisbon*
Ruehl, Adolph Henry	*Milwaukee*
Runke, Rufus tc	*Algoma*
Sabin, Jean Frederick tc	*Watertown*
Sarkis, Boshnakian	*Madison*
Schenkenberg, Lee Jay tc	*Waterford*
Schmidt, Walter Emil	*Arcadia*
Schoenfeld, William Alfred	*Madison*
Schreiber, Louis Erwin tc	*Baraboo*
Schubring, Arthur Otto	*Madison*

Stallard, John Earl	*Fairchild*	
Sullivan, Dan Thomas	*Ft. Atkinson*	
Tasker, John Bruce	*Chicago, Ill.*	
Taylor, Ross Bennett	*Madison*	
Trewartha, William Clyde	*Hazel Green*	
Turner, Forrest Haven	*Madison*	
Van Gent, Conrad Eugene	*Madison*	
Wahl, Robert Christian	*Milwaukee*	
Walker, John Charles	*Racine*	
Warner, Laird Amisee	*Grand Rapids*	
Weart, David Wilson	*Winnetka, Ill.*	
Weaver, Everett Wesley	*Waukesha*	
Wilcox, Frederick Seacard	*Elgin, Ill.*	
Wright, Lester James	*Waukesha*	
Yule, Curtis L. tc	*Madison*	
Zinke, Arthur William Hermann	*Milwaukee*	—109

JUNIORS

Albert, Arthur Robert	*Horicon*	
Alcorn, James Dunn	*Stevens Point*	
Anagnos, Peter Theodore	*Madison*	
Bailey, Ernest Hayden tc	*Madison*	
Baumeister, George Frederick tc	*Boscobel*	
Bellows, Frank Leroy	*Madison*	
Benson, Ryland Edward	*Milwaukee*	
Bieri, Russell Bernhard	*Knapp*	
Bingham, Harold Spencer tc	*Milton*	
Blakney, George Pettit	*Milwaukee*	
Bluemke, Albert Arthur	*Westfield*	
Bohstedt, Gustav	*Victor, Ia.*	
Booth, Alfred Bercry	*Chicago, Ill.*	
Boucher, Clarence Kinne	*Rochester, Minn.*	
Brainard, George Earl	*Lone Rock*	
Brannon, George Raymond	*Lowell, Ind.*	
Brown, Paul Murphy tc	*Madison*	
Brush, Miltimore Witherell	*Greenwich, Conn.*	
Burnet, Gilbert William tc	*Antigo*	
Cappell, Edmund Peter	*Cincinnati, O.*	
Carey, Sherman Milton	*Genoa Junction*	
Cary, George Albert	*Richmond, Va.*	
Chandler, Stewart Curtis	*Superior*	
*Chapman, Charles Henry	*River Falls*	
Chase, Paul Weaver tc	*Evansville*	
Clark, Glenn Gardner	*Dresser Jct.*	
Clark, William Noble	*Madison*	
Cramer, Albert Juliu	*Merrill*	
Crandall, Percy Jay tc	*Milton*	

* Died December 21, 1913.

Cunningham, Oma Leo	*Paducah, Ky.*
Dance, James Harold	*Brookfield*
Danielson, James Garfield	*Kewaskum*
Darrow, Halsey	*Western Springs, Ill.*
Dexter, Albert Jenness tc	*Madison*
Dummer, William Francis	*Chicago, Ill.*
Dustrude, Willard Arthur	*Oconomowoc*
Dye, Harry Wilmer	*New Matamoras, O.*
Evert, Charles William	*Milwaukee*
Foster, Will Asa	*Elkhorn*
Frye, Charles Francis	*Madison*
Garst, Jonathan	*Coon Rapids, Ia.*
Goodhue, Robert Shiels tc	*Whitewater*
Greene, Howard Thomas	*Milwaukee*
Halderson, Ray Hiram	*Trempealeau*
Hansen, William Carl	*Withee*
Haumerson, Clifford Cedric	*Fort Atkinson*
Hedges, Arthur F.	*Madison*
Hegeman, Rolland Louis	*Wilmot*
Henderson, Arthur Henry	*Madison*
Henry, Loyd Alexander	*Wonewoc*
Hildreth, William Sabieski	*Wheeling, W. Va.*
Hoag, Charles Dodge	*La Grange, Ill.*
Holden, Eugene Davenport	*Chicago, Ill.*
Horne, Walter Mathew	*Stevens Point*
Hosmann, Julio German	*Buenos Aires, S. A.*
Huling, John, Jr.	*Madison*
Hutchison, Earl Wedderburn	*Madison*
Jackson, Joseph Walter tc	*Monroe*
Jewett, Charles Gregory	*Madison*
Johnson, Arthur Norman	*Morrisonville*
Johnson, Marshall Chase	*Madison*
Johnson, Wayne Leslie	*Madison*
Jones, Fred Rufus	*Mauston*
Jones, Hugh Meirion tc	*Madison*
Kammlade, William Garfield tc	*Sparta*
Kautsky, Emil John	*Colby*
Keast, Carl DeWitt	*Youngstown, O.*
Knott, Arthur William	*Eau Claire*
Kraemer, Edward Conrad Adam tc	*Milwaukee*
Kyle, John Clarence	*Menomonie*
Laird, James Alexander	*Black Creek*
Lambert, William Henry	*St. Louis, Mo.*
Liddle, Earl tc	*Mifflin*
Lindauer, Alfred Clarence	*Madison*
Lobdell, Martyn Clifford tc	*Mukwonago*
Loveland, Clarence William	*Grand Rapids, Mich.*
McCutcheon, Robert	*Arena*
MacNaughton, Leslie	*Madison*
Machotka, Joseph Frank tc	*Muscoda*

Machovec, Joseph Aloysius	*Mauston*
Martin, Francis Burnham	*Geneva, O.*
Martin, Ross George	*Mounds, Okla.*
Mattson, Donald Frederick	*Omaha, Nebr.*
Maxey, George Andrew	*Oshkosh*
Meyer, Arno August Louis	*Cascade*
Middleton, George Innes	*Ripon*
Moorhouse, William Alfred	*Philadelphia, Pa.*
Mussehl, Frank Edward tc	*Jefferson*
Nord, Johannes Kleofas	*Rice Lake*
Noyes, William Baker	*Beaver Dam*
O'Hora, Thomas Lawrence	*Madison*
Olson, Thomas Mandaneous tc	*Sawyer*
Orr, Glen Harrison	*Oregon*
Patron, Henry R.	*Lima, Peru*
Phillips, Albert David tc	*Madison*
Pickett, Roswell Covert tc	*Madison*
Pitz, Walter	*Manitowoc*
Poss, Maurice Cecil	*Madison*
Pott, Arthur Frederick	*Sheboygan*
Poynton, John Gardner tc	*Green Lake*
Prucha, Edward Joseph tc	*Mishicot*
Rahmlow, Henry John tc	*Appleton*
Reed, Jessee Horatio	*Madison*
Reid, Stuart Walker	*Oconomowoc*
Robotka, Frank	*Franksville*
Roehm, Hiram Herbert	*Calumet, Mich.*
Roethe, Harry Edward	*Fennimore*
Ross, Livingston	*Rensselaer, Ind.*
Rowe, Charles Spurgeon	*Fredericksburg, Va.*
Salter, Raymond tc	*Madison*
Sanborn, Frederick tc	*St. Paul, Minn.*
Sanford, William Albert	*Ellsworth*
Schaal, Albert Amiel tc	*Cassville*
Schilling, Samuel James tc	*Appleton*
Schlenvogt, Joseph H.	*Port Washington*
Schmidt, Edward William	*New Holstein*
Schoepf, Leo Lawrence tc	*Madison*
Schroeder, Carl Harms	*Madison*
Schwendener, Benjamin Otto	*Milwaukee*
Scofield, John	*Edgerton*
Scott, Claire Osborne	*Ft. Collins, Colo.*
Shaffer, Dan Albert	*Almond*
Shemick, Frederick William tc	*Marinette*
Slothower, Leon	*Warren, Ill.*
Smith, Moses William	*Sparta*
Spoor, Glenn David	*Kenosha*
Stam, Lester Edward tc	*La Crosse*
Stone, Francis Downing	*South Range*
Strehlow, Peter Carl	*Madison*

Suhr, Edmund Julius	*Chicago, Ill.*	
Talbot, George Durban	*Willoughby, O.*	
Taylor, John Dudley	*Madison*	
Treu, Max Rudolph Hendrick	*Madison*	
Walker, Harold Ray tc	*River Falls*	
Webster, Charles Emerson	*Hudson*	
Wehrwein, Carl Frederick	*Manitowoc*	
Weingartner, Harry Albert tc	*Madison*	
Wiseman, Clinton Raymond tc	*Benton*	
Wittich, Arno tc	*Milwaukee*	
Wolcott, Oliver Seymour	*Batavia, Ill.*	
Wood, Benjamin Frank	*Fond du Lac*	
Wright, Ivan Morris	*Waukesha*	
Zeasman, Otto Reinhart tc	*Norrie*	—143

SOPHOMORES

Anderson, Harold	*Toledo, O.*	
Anderson, Hilding Edward	*North Crandon*	
Beckwith, Ralph Monroe	*Wyoming, O.*	
Benedict, Frank Westby	*Beloit*	
Bensend, Louis Adolf	*Whitehall*	
Bergman, George	*Humbird*	
Bohn, Ralph Maxwell	*Chicago, Ill.*	
Bollman, Charles Cyril	*Rockford, Ill.*	
Brady, Laurel Andrew	*Mukwonago*	
Brant, Selwyn Augustus, Jr.	*Madison*	
Brayton, Alembert Winthrop, Jr.	*Indianapolis, Ind.*	
Brue, Julius	*De Forest*	
Bullis, Irving Verne	*Eau Claire*	
Burke, Arthur de Vries	*Elm Grove, W. Va.*	
Cannon, Earl James	*Minocqua*	
Carson, Joseph	*Chicago, Ill.*	
Carson, William Waller	*Chicago, Ill.*	
Chandler, Fremont Augustus	*Chicago, Ill.*	
Colton, Luman Wesley	*Woodstock, Ill.*	
Colville, Clarence Leroy	*Valley City, N. D.*	
Coon, Frederic Warren	*Edgerton*	
Cooper, Earl John	*Bloomington*	
Cummings, Leo Bradford	*Phillips*	
Curd, Robert Franklyn	*Wilmore, Ky.*	
Cusick, Edward Timothy	*Oregon*	
Dawley, Paul Hinman	*Antigo*	
Desnoyers, Philip Baird	*Green Bay*	
Dietz, Eugene Frank	*Madison*	
Dopkins, Clyde De Forrest	*River Falls*	
Downing, Charles James	*Kansas City, Mo.*	
Elliott, James Newton	*Waco, Texas*	
Ernster, Harry Albert	*Belgium*	
Ewers, Van Buren	*Readstown*	

Feuling, Leonard Valentine	*Madison*
Flickinger, Dan Wilson	*Indianapolis, Ind.*
Forsberg, Axel Carl	*Prentice*
Foshinbaur, Victor Grover	*Chicago, Ill.*
Frazier, William Carroll	*Madison*
French, Ralph Willerton	*Madison*
Gatter, Lincoln Otto	*Evanston, Ill.*
Geary, Edward Andrew	*Portland, Ore.*
Giesecke, Ernst Franz Rudolf Hans	*Kl. Wanzleben, Germany*
Greene, Joseph Kingsbury	*Mt. Clair, N. J.*
Hales, Guy Smithers	*Granton*
Hanger, Fred Loasby	*Waupaca*
Hanson, Karl Burchard	*Chicago, Ill.*
Harbach, Ralph August	*Milwaukee*
Hart, Milton Edward	*Chicago, Ill.*
Hauser, Edwin Joseph	*Anaconda, Mont.*
Hayes, Arthur Michael	*La Crosse*
Hazelton, Frank Benjamin	*Chicago, Ill.*
Hickey, James Sheridan	*Milwaukee*
Horstmeier, Philip Frederick	*Madison*
Hough, Randall Sherman	*Madison*
Houser, Byron Ricks	*Chicago, Ill.*
Huston, Harold Herbert	*Seattle, Wash.*
Jackson, Charles Arthur	*South Bend, Ind.*
Jensen, Lester Jay	*Manawa*
Jones, Ira David	*Nashotah*
Jordon, Julius Louis	*Antigo*
Keating, Fred Earl	*Ogdensburg*
Kessenich, Alois Michael	*Madison*
Kivlin, Leo Neil	*Brooklyn*
Klapp, Albert Gordon	*Milwaukee*
Kletzsch, Gustav Adolph, Jr.	*Milwaukee*
Kloser, Martin Mathias	*Cassville*
Krueck, Walter Balthazar	*Milwaukee*
Lamberson, Raymond Alfred	*Whitehall*
Landry, Wallace Joseph	*Thorp*
Lerner, Nathan Hyman	*New York City*
Lewis, Stevenson Paul	*Cleveland, O.*
Lillie, Albert Reed Treholm	*Chicago, Ill.*
Livingston, George Shaynin	*Chicago, Ill.*
Lycan, Glenn Winfred	*Milton*
McCallan, Earl George	*Oshkosh*
McGillivary, Joseph Emmett	*Chippewa Falls*
McGilvra, Ralph Alexander	*Baraboo*
McMaster, Paul Herbert	*Frankfort, Ind.*
McQueen, Loren	*Superior*
Magnus, Alexander	*Glen Flora*
Maxwell, Arnold Ivan	*Fort Atkinson*
Merriam, Leslie Joseph	*Darlington*
Merriman, Clifford	*Fort Atkinson*

Mitchener, Robert Donald	*Cleveland, O.*
Mucks, Arlie Max	*Oshkosh*
Neumann, Arthur Henry	*Milwaukee*
Newell, Laurence Plympton	*Hinsdale, Ill.*
Noble, Harrison Robert	*Manitowoc*
Nyhus, Paul Odin	*Chippewa Falls*
Opstedal, Joseph Arnold	*Madison*
Palmer, Gail Wesley	*Wauwatosa*
Pankratz, Romain Lewis	*Menasha*
Parfrey, Alfred Clyde	*Richland Center*
Pease, Frederick Jackson	*Wauwatosa*
Peterson, Nels Andrew	*Lodi*
Plaenert, Walter Louis	*Madison*
Post, Samuel	*Madison*
Pratapas, Dominikas Benedict	*Racine*
Raine, John Thomas	*Evenwood, W. Va.*
Reddy, Charles Steven	*Platteville*
Reynolds, Edward Storrs	*Sturgeon Bay*
Robertson, Richard Douglass	*Patch Grove*
Rovner, Jacob	*Cleveland, O.*
Sasman, Louis Milton	*Black Creek*
Schapper, Ferdinand Edwin	*Powers Lake*
Schwartz, Paul La Fargue	*Brooklyn, N. Y.*
Sell, Gustav Adolph	*New Ulm, Minn.*
Sholl, Lloyd Banks	*Milwaukee*
Sieker, Oscar John	*Plymouth*
Simmons, Joseph Ellsworth	*Hazel Green*
Slaby, Frank Joseph, Jr.	*Algoma*
Spengler, George Edward	*Fort Atkinson*
Steul, Edwin Karl	*Madison*
Storer, Willis Daniel, Jr.	*Chicago, Ill.*
Storrs, Albert Miller	*Ft. Thomas, Ky.*
Street, John Anderson, Jr.	*Chicago, Ill.*
Sure, Barnett	*Milwaukee*
Sykora, James	*Chicago, Ill.*
Teige, Malvin Helmer	*Marinette*
Thompson, Ralph Schultz	*Spring Coulee, Can.*
Thompson, Roland Louis	*Elroy*
Tibbe, Russell John	*Washington, Mo.*
Toolajian, Joseph Hanna	*Adana, Turkey*
Truesdell, Horace Warner	*Washington, D. C.*
Van Evera, Rynier	*Marquette, Mich.*
Weber, Eldon John	*New Holstein*
Weimar, Albert Carl	*La Crosse*
Williams, Joseph Lloyd	*Eldorado*
Wilson, William Clark	*Greenhall, Ky.*
Woelfel, George Henry	*Chilton*
Woodard, Allen Byrne	*Marengo, Ill.*

Wright, Merton La Mont	*New London*
Wright, Morris Harry	*New London*
Zapata, Jose Emilio	*Mexico City, Mex.*

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FRESHMEN

Abbott, John Hascall	*Goshen, Ind.*
Aeppler, Carl William	*Campbellsport*
Affleck, Gregor Sidney	*Muscoda*
Ames, Norton Travis	*Oregon*
Baird, Astin Joseph	*Madison*
Baldwin, George Smith	*Youngstown, O.*
Baldwin, Harry McLaughlin	*Brooklyn*
Banta, George Veyne	*Logansport, Ind.*
Barbour, John Menzies	*Helena, Mont.*
Barrett, John Walton	*Freeport, Ill.*
Bauman, Gus Adolf, Jr.	*Quincy, Ill.*
Becker, George William	*Kenosha*
Belden, John Ellsworth	*Racine*
Belden, Stanley Raymond	*Racine*
Benson, Robert Henry	*Milwaukee*
Biersach, Henry Louis	*Freeport, Ill.*
Blackburn, Winfield Garner	*Milwaukee*
Blatchford, Percival John	*Chicago, Ill.*
Blodgett, Harold Edwin	*St. Paul, Minn.*
Boese, Frank Carl	*Ripon*
Borchert, Frank August	*Milwaukee*
Bradley, Robert Stivens	*Washington, D. C.*
Brann, Andrew Jacob	*Bailey's Harbor*
Brannen, Victor	*Little Falls, Minn.*
Brant, Howard Jonathan	*Youngstown, O.*
Brooks, Merrill	*Madison*
Brue, Sigurd	*Edgerton*
Burch, John Henry	*Ashland*
Burnham, Donald Robert	*Waupaca*
Burwell, Edward Langworthy	*Madison*
Byrne, Charles David	*Fitchburg*
Cameron, Chester Vaughn	*West Bend*
Campbell, John Walter	*Lakeside, O.*
Canary, Simeon Cecil	*Caney, Kansas*
Canon, Charles Coulson	*San Angel, Texas*
Cantwell, Edward Fox	*Milwaukee*
Cantwell, William Henry	*Shawano*
Cardenas, Miguel R.	*Coahuila, Mexico*
Castro, Antonio Garza	*Buenaventura, Mexico*
Chipman, Harold Robert	*Morrisonville*
Christie, Alexander	*Butte, Mont.*
Clark, Elmer Russell	*Lodi*
Conrey, Hugh Franklin	*Madison*
Crothers, Donald Hayne	*Neillsville*

Daniels, Frank Clifford	*Harvey, Ill*
Davis, Deane Griswold	*Duluth, Minn.*
Downing, John Fonda, Jr.	*Louisville, Ky.*
Dunlop, John Rankin	*Oak Park, Ill.*
Edwards, Edmund Bernard	*San Benito, Texas*
Ellbogen, Charles Dickens	*Chicago, Ill.*
Eyers, William, Jr.	*Negaunee, Mich.*
Fadness, Henry John	*Deerfield*
Falck, Erven Jacob	*De Pere*
Fisk, George Robert	*St. Croix Falls*
Foss, Allen Richard	*Milltown*
Freeman, Charles Marble	*Hinsdale, Ill.*
Fuente, Luis de la	*Nadadores, Coah, Mexico*
Giaver, Finn	*Chicago, Ill.*
Gill, Charles Albert	*Madison*
Gilman, Carl Callow	*Linden*
Gimbert, Harry Edward	*Rochester, Minn.*
Crowell, Solon Donald	*Paw Paw, Ill.*
Graber, Ernest William	*Mineral Point*
Grabfelder, Earle	*Louisville, Ky.*
Grams, William Theodore	*Watertown*
Gronouski, John Austin	*Fairchild*
Gross, Erwin George	*Merrimac*
Guckenberger, Carl Albert	Cincinnati, O.
Hamacheck, Otto Walter	*Kewaunee*
Hancock, Howard Joseph	*Shullsburg*
Hardy, James Edward	*Louisville, Ky.*
Heider, Frederick Alonso	*Kewaunee*
Highberger, John Foster	*St. Paul, Minn.*
Hill, George O'Neil	*Rosendale*
Hollingsworth, Wright Everett	*Beaver Dam*
Hoppert, Arno Henry	*Sheboygan*
Horst, Edward Gustav	*Superior*
Horton, Raymond Edgar	*Chicago, Ill.*
Hovde, Harold Arthur	*Washburn*
Irving, William Clifford	*Iron River*
Jackson, Joel Charles	*Harrison, Mont.*
Jackson, Kenneth Hockra	*De Pere*
Jahsman, William Edward	*Manawa*
James, Earle Butler	*Blue Island, Ill.*
Johnson, Frank Argall	*Wausau*
Johnson, Leland Sylvester	*Grand Rapids*
Johnson, Otto Nicholi	*Chippewa Falls*
Johnson, Walter Abel	*Mazomanie*
Jungkunz, William Kunz	*Freeport, Ill.*
Kelley, Kenneth Mosley	*Tomah*
Kelley, William Michael	*Mitchell, S. D.*
Kellogg, Robert	*Randolph*
Kelting, Aubrey North	*Madison*

King, Royal Ernest	*Madison*
Klock, Walter Manley	*St. Croix Falls*
Loescher, Clarence Albert	*Menasha*
Lord, John Boardman	*Washington, D. C.*
Lovering, William Knell	*Shabbona, Ill.*
McCann, Ray Thomas	*Edgerton*
McCudden, Louis Daniel	*Iron River*
McCullough, Joseph Frank	*Madison*
McFerran, John Byrd 3rd	*Louisville, Ky.*
Machlis, Joseph Arthur	*Madison*
Maedje, Carl Waldermar	*East Cleveland, O.*
Manegold, Nora Elizabeth	*Milwaukee*
Markley, Paul Sibley	*London, O.*
Martin, August Henry	*Reedsburg*
Massee, Richard Drew	*Dayton, O.*
Matherly, Charles Hartford	*Mackville, Ky.*
Maxwell, Gilbert Bradley Shaw	*Chicago, Ill.*
Mazzini, Luis Isaac	*Lima, Peru*
Mengel, Joseph Torbitt	*Louisville, Ky.*
Metcalf, Stanley	*Janesville*
Michels, Walter	*Chicago, Ill.*
Miller, David Beckwith	*Cleveland, O.*
Mitchell, Prescott Tallman	*Cincinnati, O.*
Mogg, Edgar Hartwell	*Chicago, Ill.*
Moore, Merton	*Potsdam, N. Y.*
Morgan, Robert Edward	*Oshkosh*
Mott, Harold Albertus	*Eau Claire*
Murray, Robert Edward	*Grand Rapids, Mich.*
Nelson, Elmer Martin	*Grand Rapids*
Nelson, George William	*Marinette*
Nevin, William Ambrose	*Racine*
Nichols, Philip Lesley	*Sheboygan*
Norton, Earl Timothy	*Medford*
Nylin, Victor Emmanuel	*Tracy, Minn.*
O'Connor, Clarence Wood	*Milwaukee*
Osborne, Albert Judd	*Ashland*
Pedley, Timothy Asbury, Jr.	*Owensboro, Ky.*
Pope, Charles Alfred	*Racine*
Quentmeyer, Philip Carl	*Watertown*
Quick, Victor Hugo	*Peshtigo*
Raymond, Hal Ellsworth	*Milwaukee*
Rhodes, Charles Dover	*Paducah, Ky.*
Richards, Wesley Wirt	*Chicago, Ill.*
Rishel, Raymond Heinsdorf	*Chicago, Ill.*
Roberts, Harlow Pliny	*Corliss*
Roberts, John Basil	*Shullsburg*
Roberts, Junius Sturges	*Fort Madison, Ia.*
Roehm, Linus Theodore	*Ashland*
Rogan, Hubert Edward	*Racine*
Rosenheimer, Maurice Wendell	*Kewaskum*

Ross, Herbert Hugo	*Milwaukee*	
Ruehlow, William Carlton	*Albany*	
Rumpf, Maxwell Julian	*Cambridge*	
Schafer, Harold George	*Chilton*	
Schelling, Edward William	*Racine*	
Scott, Benjamin Ives	*Rochester, Minn.*	
Settlemeyer, George August	*Gardnerville, Mo.*	
Sibley, Harry Dow	*Huntsville, O.*	
Siecke, Kurt Hugo	*Freeport, Ill.*	
Skalitsky, Ernest Elmore	*Marshall*	
Smith, Carman Bigelow	*Bay City, Mich.*	
Smith, David William	*Mazomanie*	
Spensley, Robert Bashford	*Madison*	
Stiles, Philip Gleason	*Chicago, Ill.*	
Sullivan, Phillip Robert	*Iron River*	
Thompson, John Abbot	*Madison*	
Van Deu Berg, William John	*Menominee, Mich.*	
Van Horne, Philip Bert	*Sterling, Ill.*	
Van Kleeck, Arthur	*Chicago, Ill.*	
Van Sinden, Carl Henry	*New York*	
Voskuil, Walter Henry	*Cedar Grove*	
Wallrich, William	*Shawano*	
Walton, Charles William	*Scales Mound, Ill.*	
Ward, Albert Henry	*Evanston, Ill.*	
Weaver, Russell Oran	*Dayton, O.*	
Weed, Linton Gilmore	*Boniface, Mich.*	
Weeks, Louis George	*Hayton*	
Wehr, Perry Neil	*Youngstown, O.*	
Wells, James Earl	*Mitchell, S. D.*	
West, Walter Aaron	*Elkhorn*	
Whipple, Milo Gibson	*Eleva*	
Wilcox, Blair Sprong	*Spencerport, N. Y.*	
Williams, Edgar Lindly	*Bloomingdale, Ind.*	
Williams, Leland Wolcott	*Welcome*	
Williams, Robert Newton	*New York City*	
Williams, Roger O.	*Langford, S. D.*	
Young, Ping Hsun	*Hangchow, China*	
Zuehlke, Ulrich Randolph	*Milwaukee*	—181

MIDDLE COURSE

SECOND YEAR

Baird, Harvey Patterson	*Merrimac*	
Birkinbine Robert Clayton	*Sun Prairie*	
Brooks, Paul Victor	*Greenfork, Ind.*	
Brooks, Raymond Earnest	*Granton*	
Brusse, William t c	*Baldwin*	
Byse, Gage Bird t c	*Wautoma*	

Chaplin, Harvey William	*Plymouth*
Chrisler, Earl Sylvester	*Lodi*
Cleary, Emmet Vincent	*Antigo*
Dickson, Carl Gimble	*Madison*
DiVall, Ray	*Montfort*
Dunwiddie, Ralph Sidney	*Delavan*
Eaton, Starr Sedgwick	*Madison*
Grover, Lyman Hamilton	*Milwaukee*
Hall, Robert Everett	*Yorkville, Ill.*
Harney, Thomas Porter	*Marshfield*
Holway, Orlando	*Merrillan*
Juday, George Ballzer	*Madison*
Kenkel, George Albert	*New London*
Knollin, James Charles	*Bethel, Kansas*
Loebe, Robert	*Chicago, Ill.*
Louret, Francis	*Waldo*
Melby, William Hazard	*Whitehall*
Miller, Walter Sears	*Viola*
Moll, Norman L.	*La Crosse*
Mulhall, James Ferry	*Sioux City, Ia.*
Nickel, Edwin John	*Chicago, Ill.*
Powell, Albert Walker	*Madison*
Ranlett, Wyatt Frye	*Calgary, Can.*
Ridgway, Cedric	*Madison*
Roske, Melvin Passon	*Gary, S. D.*
Seyforth, Harlan Guy	*Mondovi*
Slagg, Charles Merwyn	*Cambridge*
Sorbel Martin William t c	*Webster, S. D.*
Stonehouse, Earl	*Larimore, N. D.*
Thacher, Harry Ivon	*Zenda*
Toomey, Paul Joseph	*Boardman*
Valenzuela, Mariano	*San Jose, Costa Rica*
Van der Byle, Pieter Gerhard	*Pretoria, So. Africa*
Washburn, Clarence Judson	*Sturgeon Bay*
Wiegand, Kurt Theodore	*Cleveland*
Winegar, Foster Volney	*Clinton*
Wise, Adolph Harry	*Chattanooga, Tenn.*
Youngbluth, Roy Osmund	*Madison* —44

FIRST YEAR

Adams, William Bartlett	*Webster Grove, Mo.*
Alderson, Ralph	*Fennimore*
Ballock, Thomas Gilbert	*Kansasville*
Bancroft, George Stanley	*Mount Horeb*
Barrett, George Ambridge	*Glencoe, Ill.*
Bergmann, Paul William	*Goodrich*
Bickford, Byron Monroe	*Prairie du Sac*
Biery, Edward Andrew	*Wheeling, W. Va.*
Blackmar, Howard Bowman	*Lawrence, Kansas*

Bleecker, Warren Talmadge	*Minneapolis, Minn.*
Bloecher, Raymond Francis	*Wittenberg*
*Boyce, Lloyd Merrill	*Milwaukee*
Brown, Harold Arthur	*Dundee, Ill.*
Cahoon, Edward David	*Racine*
Carr, Carlyle	*Madison*
Chandler, George Anthony	*Madison*
Clarke, Carroll Curtis	*Madison*
Collins, Paul Francis	*Racine*
Comings, Willard Steadman	*Eau Claire*
Dahle, John Carlisle	*Sun Prairie*
Dalzell, David	*Wheeling, W. Va.*
Donnelly, Buford William	*Ryan, Ia.*
Dorsey, Louise Lydia	*Anchorage, Ky.*
Early, Dwight Holdridge	*Oak Park, Ill.*
Eaton, Lee Medbury	*Detroit, Mich.*
Fowler, Harold Douglas	*Superior*
Gass, Anthony Michael	*Larimore, N. D.*
Giese, John William	*Kewaunee*
Gregory, Omar Britt	*Bloomington, Ill.*
Haggerty, Clarence Henry	*Rochester, Minn.*
Hanson, Julian Thomas	*Cambridge*
Harper, Henry Miller	*South Bend, Ind.*
Holloway, Walter Albert	*Chicago, Ill.*
Hooker, William Leonard	*Hibbing, Minn.*
Hughes, Earl	*Wild Rose*
Humphries, Andrew Kenneth	*Montrose, Colo.*
Jenks, Florence Margaret	*Avoca, Ia.*
Jensen, James Albert	*Clinton*
Jensen, Walter Samuel	*Chicago, Ill.*
Johnson, Axel Oscar	*Lake Geneva*
Jones, Eugene Blanchard	*Chicago, Ill.*
Joyce, Howard Francis	*Ashland*
Knickel, Martin Reinhold	*Campbellsport*
Kuhlman, Gustav Wesley	*Lowell*
Latimer, Arthur Griffith	*Seattle, Wash.*
Lenicheck, Arthur Emil	*Milwaukee*
Lockwood, Edgar	*Greenwich, Conn.*
McCabe, William John	*Duluth, Minn.*
Mills, Hugh Raymond	*Madison*
Montieth, Darrel McDermott	*Madison*
Morgan, Glenn Leroy	*Furnessville, Ind.*
Nickerson, Lester Roy	*Prairie du Chien*
Norgaard, Uffe Jensen	*Withee*
Peck, Harry Beaufort	*Spring Green*
Peckinpaugh, Ruth Dale	*Evansville, Ind.*
Pocock, Ralph Hensen	*Massillon, O.*
Porter, Charles Virgin	*Viroqua*
Reppen, Joseph Norman	*Dane*
Roerig, Erwin Louis	*Milwaukee*

Root, Ross Newman	*Granton*	
Sayre, Arthur Frederic	*Beloit*	
Sazama, James J.	*Kewaunee*	
Schmoock, Werner Charles	*Two Rivers*	
Seielstad, Harold Edward	*La Crosse*	
Shepherd, Mildred Florence	*Milwaukee*	
Slagg, Milo Joseph	*Fort Atkinson*	
Smith, Leverne Fullerton	*West Salem*	
Soukup, John	*Sturgeon Bay*	
Starr, Philip Comfort	*Kenilworth, Ill.*	
Steele, Warren Sill	*Rochester, N. Y.*	
Sullivan, William Daniel	*Fond du Lac*	
Thompson, Elmer Clarence	*Wyocena*	
Thomsen, Louis Charles	*Medford*	
Tichenor, Lauren Edgar	*Waupun*	
Warwick, Bruce Lester	*Aledo, Ill.*	
Wayman, Frederick C.	*Indianapolis, Ind.*	
Weir, Walter Allen	*Mukwonago*	
Williams, Chester Albert	*Fond du Lac*	
Williams, Joseph Lucas	*Genoa Junction*	
Wilsey, Stanley Miller	*Newark, N. J.*	
Wolf, Carence Nathan	*Sun Prairie*	
Wood, George Hudson	*Kansas City, Kas.*	
Woodward, Overton Sidney	*Richmond, Va.*	—83

HOME ECONOMIC COURSE

SENIORS

Andrus, Ruth Clarissa	*Madison*
Bradley, Clara Vivian t c	*Madison*
Breck, Marion Florilla t c	*Milwaukee*
Calkins, Kathleen Clinch	*Evansville*
Cape, Jane Bruce t c	*Dodgeville*
Coldwell, Valeria G. t c	*Blue Mounds*
Crosby, Bernice Lydia t c	*Madison*
Douglas, Winifred	*St. Louis, Mo.*
Ellsworth, Ida Estelle t c	*Madison*
Ely, Lydia Baxter	*Madison*
Fargo, Jennie Ethelyn t c	*Mt. Horeb*
Fess, Madeline t c	*Madison*
Gaffron, Martha Otelia t c	*Plymouth*
George, Iola Frances t c	*Monticello, Ia.*
Gill, Glayds Grimshaw t c	*Mauston*
Glidden, Josephine Frances	*De Kalb, Ill.*
Hall, Saidee Lord t c	*Cambridge*
Hoesly, Olga Marie t c	*Monroe*
Jarvis, Florence May tc	*Madison*
Koehler, Jennie Emma t c	*Menomonee Falls*
Marshall, Lucile Mary	*Marion, Ia.*

Minturn, Ruth t c	*West Allis*	
Morley, Fannie Edna t c	*Baraboo*	
Murray, Helen Frances t c	*Rensselaer, Ind.*	
Oakey, Edna Kathryn t c	*Madison*	
Peck, Ruth Annette	*Louisville, Ind.*	
Poulter, Mary Alice t c	*Cumberland*	
Richards, Ella Alfraetta t c	*Mineral Point*	
Robertson, Lucile Clarinda t c	*Evanston, Ill.*	
Rundell, Ada Lillian t c	*Platteville*	
Ryan, Eunice Veronica t c	*Madison*	
Seeber, Helen Marie	*Watertown*	
Snyder, Lucile Barbara t c	*Massillon, O.*	
Stoker, Ann Evline	*Centralia, Ill.*	
Weiss, Florence Marie t c	*Madison*	—35

JUNIORS

Bell, Grace Lina	*Peebles*
Bradley, Alice Veronica t c	*Madison*
Chapman, Evelyn t c	*Hartland*
Cullinan, Josephine Marie t c	*Madison*
Dahle, Beulah t c	*Madison*
Dreger, Emma Adele	*Mayville*
Dulaney, Grace	*Slater, Mo.*
Eastlund, Lillian Hulda	*Superior*
Elliott, Rose Lawrence	*Pataskala, O.*
Farquhar, Florence t c	*Chicago, Ill.*
Fauerbach, Elsa Marie t c	*Madison*
Fenton, Theo	*Madison*
Flett, Helen Ann t c	*Racine*
Follmer, Pansy Marguerite t c	*Oak, Neb.*
Gleason, May Columbia t c	*Madison*
Hamilton, Nell Scott	*Madison*
Hanson, Helena Christine Louise t c	*Neenah*
Hayden, Stella Jeannette	*Milwaukee*
Higgins, Clara t c	*Leadville, Colo.*
Hinkson, Ora Lucy t c	*Poynette*
Hinn, Alene Theresa t c	*Fennimore*
Kalmbach, Ethel Alberta	*Sturgeon Bay*
Latham, Gladys	*Madison*
LeFeber, Alice Marie	*West Allis*
MacArthur, Catherine t c	*Superior*
McKenna, Margaret Mary t c	*Green Bay*
McMurry, Mabel Jane t c	*Madison*
Mathews, Cornelia	*Brookings, S. D.*
Miller, Gladys Emma t c	*Blue River*
Morrissey, Agnes t c	*Madison*
Murray, Cecelia Elizabeth t c	*Madison*
Piper, Bessie Arabelle t c	*Madison*
Seielstad, Alma t c	*La Crosse*

Shoemaker, Ella Marie t c	*Janesville*	
Simmonds, Nina t c	*Fontana*	
Smith, Edna Winnifred	*Geneseo, Ill.*	
Smith, Helen Mary t c	*Wauwatosa*	
Stavers, Mildred Evelyn	*St. Louis, Mo.*	
Stuessy, Sylvia Gertrude	*Madison*	
Swingle, Florence Natalie	*Muscoda*	
Whitney, Alice	*Madison*	
Winans, Luella Minett t c	*Madison*	
Witwen, Barbara Jane t c	*Prairie du Sac*	
Woll, Margaret Louise t c	*Madison*	—44

SOPHOMORES

Ackermann, Florence Mathilda	*Grand Rapids, Mich.*
Andrews, Gladys	*Richland Center*
Aurland, Helen	*Minot, N. D.*
Barnes, Fayne Julia	*Madison*
Caldwell, Hazel Marion	*Lodi*
Casterline, Marion Alice	*Chicago, Ill.*
Coon, Beulah Isabel	*Madison*
Cooper, Dorothy Beatrice	*Walworth*
Craft, Fern Janette	*Kingsbury, Ind.*
Damon, Edith May	*Madison*
Dorward, Elsie Estelle	*Madison*
Ely, Florence Marie	*Mauston*
English, Honora Elizabeth	*Waterford*
Esch, Irene Esther	*La Crosse*
Frederick, Irene Helen	*Madison*
Hawley, Villetta Irene	*Oregon*
Hibbard, Carrie Adelle	*Madison*
Higgins, Virginia Margaret	*Wheeling, W. Va.*
Howard, Beatrice Marguerite	*Greenwood*
Iversen, Ingeborg Marie	*Stoughton*
Laing, Dorothy	*Berlin*
Larson, Mabel Josephine	*Cooperstown, N. D.*
Leland, Gertrude Church	*Whitewater*
Little, Mary Frances	*Menasha*
Madison, Betsey	*Bowling Green, Ky.*
Marks, Gertrude Eleanor	*Fennimore*
O'Callaghan, Helen Florence	*Norway, Mich.*
Osmundsen, Stella Mae	*Madison*
Piper, Rena Kate	*Madison*
Post, Frances	*Madison*
Ray, Margaret Elizabeth	*Madison*
Reed, Helen Morse	*Necedah*
Richards, Avis Marie	*Milwaukee*
Ross, Mary Endress	*Renville, Minn.*
Runyan, Mabel Adelle	*South Haven, Mich.*

Scheinpflug, Marie Mabel	*Boscobel*	
Shipek, Emma	*Antigo*	
Sime, Eleanor Adelene	*Stoughton*	
Spinney, Vera Belle	*Madison*	
Stanley, Martha Ellen	*East Alton, Ill.*	
Strickler, Leola May	*New Ulm, Minn.*	
Taylor, Margaret Lincoln	*Lancaster*	
Turner, Florence Nightingale	*Madison*	
Warwick, Sarah Elizabeth	*Keokuk, Ia.*	
Wattawa, Katherine Elizabeth	*Madison*	
Whitehead, Margaret	*La Grange, Ill.*	
Willson, Inez Searles	*Duluth, Minn.*	
Wood, Clarissa Whitcomb	*Albany*	—48

FRESHMEN

Alderson, Vera Louise	*Morgan Park, Ill.*
Allen, Harriet Gladys	*Aurelia, Ia.*
Amundson, Ruth Carletta	*Cambridge*
Arpin, Florence Natalie	*Grand Rapids*
Baldwin, Elizabeth C.	*West Allis*
Barkey, Florence Irene	*Chicago, Ill.*
Bear, Helen Judy	*Germantown, O.*
Bewick, Paula Zedler	*Madison*
Bibbs, Mildred Katherine	*Madison*
Breitenbach, Vera Mae	*Madison*
Brictson, Hazel Effie	*Fox Lake*
Briggs, Rosa Fitch	*East Grand Forks, Minn.*
Brundage, Dorothy	*Madison*
Censky, Lillian Rose	*Antigo*
Cook, Dorothy Margaret	*Madison*
Dáhle, Thea Otelia	*Mt. Horeb*
Dillon, Dorothy Hutchins	*Madison*
Eckert, Helen Elizabeth	*St. Louis, Mo.*
Erickson, Edna Frances	*Sun Prairie*
Fitzpatrick, Maude Beatrice	*Madison*
Flower, Maude Evelyn	*Madison*
Foster, Mae Eva	*Merrill*
Freund, Lillian Elizabeth	*Chicago, Ill.*
Gaubatz, Alma Therese	*Chilton*
Gerner, Ethel Ruth	*Chicago, Ill.*
Gibbs, Olive Reid	*Chicago, Ill.*
Griffin, Emma Henrietta	*Clark, S. D.*
Grimes, Helen M.	*Sterling, Ill.*
Haley, Lillian Claire	*Madison*
Hayes, Irene	*Pocatella, Idaho*
Jaqueth, Edna Wenonah	*Kalispell, Mont.*
Jones, Clare Ethel	*Plymouth, Ind.*
Juday, Mattie Mae	*Madison*
Karnopp, Evelyn Grace	*Mishicott*

Kent, Charlotte Louise	*Kenosha*	
Kent, Hazel Eva	*Duluth, Minn.*	
Keyes, Sadie Catherine	*Madison*	
Kleinheinz, Frances Margaruite	*Madison*	
Kloss, Sara	*Webster Grove, Mo.*	
Koch, Elizabeth Emma	*Madison*	
Lasche, Consuelo Mary	*Milwaukee*	
Leenhouts, Sadie Elizabeth	*Milwaukee*	
Lewis, Jane Deborah	*Portage*	
Lewis, Jeanette Florence	*Chisholm, Minn.*	
Lottes, Marie Kathryn	*Madison*	
Love, Marguerite	*Leroy, Ind.*	
Matthewson, Norma Naomi	*De Kalb, Ill.*	
Morse, Edna Lucretia	*Pewaukee*	
Nagler, Genevieve Catherine	*Osceola*	
Paulson, Emma Amelia	*Mt. Horeb*	
Ray, Florence	*Madison*	
Renich, Florence Caroline	*Woodstock, Ill.*	
Roberts, Margaret Emma	*Cambria*	
Robertson, Jennie Marie	*Lodi*	
Rukgaber, Theresa Victoria	*Madison*	
Scheide, Emerald Amelia	*Madison*	
Scott, Juanita	*Des Moines, Ia.*	
Simpa, Madeline Elizabeth	*Blue River*	
Sims, Hazel Angeline	*Kingston*	
Smith, Helen Florence	*Madison*	
Smyth, Florence East	*Englewood, Ill.*	
Sprecher, Florence Mildred	*Madison*	
Sturtevant, Hazel Isabel	*Lynden, Ill.*	
Tarbox, Marjorie Elizabeth	*Ashland*	
Thielman, Lillian Dorothy	*Merrill*	
Waring, Grace Anna	*Washington, D. C.*	
Weir, Leda Marie	*Mukwonago*	
Wengel, Edith Magdalen	*Madison*	
White, Amy Gertrude	*Mineral Point*	
Whitney, Katharine Townsend	*Madison*	
Whittemore, Thelma Attalie	*Huntington, W. Va.*	
Wilcox, Grace Eleanor	*Elroy*	
Wilkinson, Irma	*Madison*	
York, Margaret Ermine	*Superior*	—74

ADULT SPECIALS—LONG COURSE

Avery, Rachel Foster	*Philadelphia, Pa.*	Sophomore
Basherov, Samuel	*Madison*	Sophomore
Buchanan, Samuel Day	*Lake Mills*	Freshman
Erwin, Grant West	*Milwaukee*	Freshman
Fiedler, Albert Charles	*Batchtown, Ill.*	Freshman
Foshinbaur, George Anton	*Chicago, Ill.*	Sophomore
Fuente, Jose de la	*Mondova, Mexico*	Sophomore

Geraldson, Morton Lea	*Manitowoc*	Junior
Graves, Burrell Pinckney	*Redgranite*	Senior
Green, Walter Elmer	*Milwaukee*	Freshman
Haack, Theodore Theophil	*Milwaukee*	Junior
Hanson, Lewis Peter t c	*Madison*	Senior
Hoyord, Walter Ernest t c	*Scandinavia*	Junior
Hussey, Joseph Michael	*Whitelaw*	Sophomore
Kauffman, William Frederick	*Parkton, Md.*	Freshman
Kirsch, William	*Madison*	Sophomore
Kristoferson, Alfred, Jr.	*Seattle, Wash.*	Sophomore
Krueger, Arthur Frederick	*Kenosha*	Freshman
Montgomery, Lyman Vernon	*Evansville*	Freshman
Morris, George Charles	*Madison*	Senior
Nelson, August	*Chicago, Ill.*	Freshman
Pierce, Henry Leaver	Elkhorn	Junior
Schmidt, Alfred Frederick	*North Crandon*	Sophomore
Schutte, Carl Jacobus Erasmus	Madison	Junior
Stewart, Lee Hardy	*La Moure, N. D.*	Senior
Tosterud, Martin	*Caledonia, Minn.*	Freshman
Vogl, Edwin C.	*Unity*	Freshman
Wakefield, Robert Brown	*Madison*	Sophomore
Willis, Robert James	*Rewey*	Freshman
Wilson, Walter Wellington	*Oconto Falls*	Freshman

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ADULT SPECIALS—MIDDLE COURSE

Birong, Arthur	*Madison*	Freshman
Boucher, James Duane	*Madison*	Sophomore
Brown, Laurence Murphy	*Washington, D. C.*	Freshman
Burt, Charles Connet	*Brodhead*	Freshman
McFerran, Calvin Wentworth	*Louisville, Ky.*	Freshman
Morrish, Archer James	*Jonesboro, Ind.*	Freshman
Whitney, Maurice	*New York, N. Y.*	Freshman
Wildberger, John Brooks	*Roseacres, Miss.*	Freshman

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ADULT SPECIALS—HOME ECONOMICS COURSE

Bristol, Reva Ernestine t c	*Madison,* Junior
Dewees, Anna M.	*Whittier, Ia.,* Freshman
Miller, Clara Josephine t c	*Racine,* Junior
Purtell, Edna Maie	*Madison,* Freshman

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WISCONSIN LIBRARY SCHOOL

Andrews, Gladys May	*Escanaba, Mich.*
Bingham, Jessie Williams	*Chicago, Ill.*
Brown, Jessie Robina	*San Diego, Cal.*
Burt, Martha Beckford	*Owego, N. Y.*
Clancy, Agnes Mary	*Racine*
Coon, Blanche Mildred	*Buffalo, N. Y.*
Cox, Fannie Edith	*Madison*

Easton, Valeria	*Columbia, Mo.*
Emmons, Alice Milner	*Detroit, Mich.*
Evans, Verna Margaret	*Eau Claire, Mich.*
Friedel, Esther	*Jefferson*
Grace, Louise Carol	*Detroit, Mich.*
Griffin, Mary	*Burlington, Ia.*
Hanson, Doris Mary	*El Paso, Texas*
Hedenbergh, Ethel Agnes	*Sioux City, Ia.*
Ingram, Lottie Nell	*Hoquiam, Wash.*
Jacobus, Alma Boynton	*Albert Lea, Minn.*
Kimball, Mary B.	*Green Bay*
King, Agnes	*Milwaukee*
Kjellgren, Anne Elizabeth	*Rockford, Ill.*
Lewis, May Chance	*Madison*
Love, Florence Deborah	*Decatur, Ill.*
Lutkemeyer, Georgia	*Jacksonville, Ill.*
McGovern, Catharine Helen	*Cedarburg*
Marshall, Mary Louise	*Carbondale, Ill.*
Sharp, M. Kathryn	*New Philadelphia, O.*
Stockett, Julia Carson	*Calgary, Alberta, Can.*
Wieder, Callie	*West Branch, Ia.*

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JOINT COURSE

Angvick, Rachel	*Ashland*
Baker, Marion Virginia	*Madison*
Clark, Leona Letitia	*Portage*
Congdon, Ferne Lina	*Delavan*
Farr, Helen Esther	*Eau Claire*
Fieldstad, Nina	*Waupun*
Muench, Lili Anna	*Waukesha*
Rice, Ruth Catherine	*Madison*

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LIBRARY ADMINISTRATION AND PUBLIC SERVICE

Blackall, Elizabeth W.	*New York City*
Cannon, Lucius Hanchett	*Milwaukee*
Davis, Earl Harrison	*Lincoln, Neb.*
Hochstein, Irma	*Milwaukee*
McMullin, Jennie Willing	*Madison*
Schatz, Walter Phillip	*Wayside*
Turner, Glenn Patterson	*Madison*

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SUMMER SESSION OF 1913

COLLEGE OF LETTERS AND SCIENCE

GRADUATES

Ackerman, Adolf — *New Ulm, Minn.*
M. A., University of Wisconsin

Adams Margaret — *Madison*
B. A., University of Wisconsin

Alexander, Edith Eaton — *Logansport, Ind.*
B. A., University of Indiana

Alley, John — *Norman, Okla.*
B. A., Harvard University

Andressohn, John Carl — *Milwaukee*
M. A., University of Wisconsin

*Armstrong, Myrtle — *Shelbyville, Ind.*
B. A., University of Indiana

Arneson, Ben Albert g — *Madison*
B. A., University of Wisconsin

Ash, Isaac Emery g — *Madison*
M. A., University of Wisconsin

Atwood, Marion John — *Madison*
M. A., University of Wisconsin

Austin, Jessie Mayverne — *Madison*
B. A., Beloit College

Baker, Ross Allen g — *Madison*
M. A., De Pauw University

Baldwin, Aneta — *Paris, Ill.*
B. A., University of Illinois

Banks, Charles — *Kirksville, Mo.*
B. A., Kirksville State Normal

Barnes, George Emerson — *Battle Creek, Mich.*
B. A., Oxford University

Bartholomew, Elbert T. g — *Stockton, Kansas*
B. A., Kansas State Normal

Bartlett, Mary Elizabeth — *Lewiston, Maine*
B. A., Bates College

Bastine, Harry G. — *Calumet, Mich.*
B. A., Alma College

Bauman, Sarah Sterner — *Allentown, Pa.*
B. A., Wellesley College

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*Advanced course for the training of teachers.

Beachler, William — *West Milton, Ohio*
B. L., Earlham College
Bean, Gertrude Sydnie — *Waukesha*
B. A., Carroll College
Bear, Finnan Edward g — *Madison*
M. S., Ohio State University
Beath, John William — *Durand*
B. A., University of Wisconsin
Beaton, Eleanor — *Chicago, Ill.*
B. A., Northwestern University
Beatty, Maria — *Chicago, Ill.*
B. A., University of Chicago
Beckley, Wesley Benjamin — *Salem, Ore.*
B. A., Willometta University
Beecher, Henry Ward — *Springfield, Mass.*
B. S., University of Vermont
Bellis, William — *Mt. Pleasant, Mich.*
B. S., University of California
Benger, Ernest Baden — *Grand Rapids*
B. S., Grinnell College
Bennett, Grace Alice — *Marshall*
Ph. B., Lawrence College
Bennett, N. Faye g — *Uhrichsville, O.*
Ph. B., Denison University
Benzen, Frederick Whelpley — *Warrens*
B. S., University of Wisconsin
Bergman, Carl Joseph — *Rockford, Ill.*
M. A., University of Illinois
Bergman, Paul Julius — *Milwaukee*
B. A., Northwestern College
Berryman, Julia — *Shelbyville, Ky.*
B. A., Wellesley College
Bidgood, Lee — *Madison*
M. A., University of Virginia
Billings, Frederick Horatio — *Lawrence, Kans.*
Ph. D., Munich
Binford, Jesse H. — *Richmond, Va.*
B. A., Richmond College
Bird, Nancy Phelps — *Battle Creek, Mich.*
B. A., Olivet College
Bird, Thomas Buffington — *Baton Rouge, La.*
B. S. Louisiana State University
Birtwell, Bertha — *Washington, D. C.*
B. A., George Washington University
Birtwell, Elizabeth — *Washington, D. C.*
B. A., Wellesley College
Bissell, Addison Hayes — *Newark, N. J.*
B. L., Princeton University
Black, John Donald — *Ft. Atkinson*
M. A., University of Wisconsin

Blakeslee, Lella Josephine B. A., Rockford College	*Waukesha*
Blankenagel, John Carl g B. A., University of Wisconsin	*Milwaukee*
Bliss, Vera M. B. A., North Dakota University	*Lakota, N. D.*
Blood, Emma Belle Ph. B., University of Wisconsin	*Oshkosh*
Blunck, Matilda Ph. D., A. L. O.	*Madison*
Bohannon, Ida B. L., Kansas Wesleyan University	*Salina, Kas.*
Boren, Welz E. B. A., University of Indiana	*Milwaukee*
Borgers, William Benjamin B. A., University of Wisconsin	*Penn Yan, N. Y.*
Borthwick, Margaret G. B. A., University of South California	*Los Angeles, Cal.*
Botkin, Winfield B. A., University of Indiana	*Ottumwa, Ia.*
*Bourn, Nora Edith g B. A., University of Indiana	*Stilesville, Ind.*
Bowen, Lucy Tufts B. A., Western College	*Logan, O.*
Bowles, Robert Earl B. A., William Jewell College	*Carrollton, Mo.*
Bowman, Aleda M. B. A., University of Wisconsin	*Sterling, Ill.*
Bowton, Reece C. B. A., University of Indiana	*Sheldon, Ill.*
Brandau, Justus H. B. A., Dubuque German College	*Dubuque, Ia.*
Bridge, Earle Read B. S., Knox College	*Galesburg, Ill.*
Bridgham, John Merrill M. A., Dartmouth College	*Dexter, Me.*
Briesen, Elizabeth von B. L., University of Wisconsin	*Columbus*
Buchwalter, Grace May B. A., University of Illinois	*Gardner, Ill.*
Budde, Clarmae B. A., Leland Stanford University	*San Jose, Cal.*
Bullock, D. Edith Ph. B., University of Michigan	*Howell, Mich.*
Bunnell, Mary Martha g B. S., University of Wisconsin	*Madison*

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Burchard, C. Winfield g M. A., University of Wisconsin	*Madison*
Burr, Charles Gilbert B. A., Virginia Chris. College	*Emporia, Va.*
Butcher, Ethel Ruth B. A., De Pauw University	*Greencastle, Ind.*
Cable, John Ray B. S., University of Missouri	*Drexel, Mo.*
Calhoun, Arthur Wallace B. A., Pittsburg University	*Hopkinton, Ia.*
Campbell, Emma B. Ph. B., Grinnell College	*Chicago, Ill.*
Campbell, Fannie B. A., Northwestern University	*Coal City, Ill.*
Carmody, Winifred Mary g B. A., St. Clara College	*Hillsboro, N. D.*
Caro, Joseph Raymond g B. A., University of Oregon	*Madison*
Carr, Ralph Howard M. S., University of Wisconsin	*Emporia, Kas.*
Carson, William Wallace M. A., Trinity College, N. C.	*Sportemburg, S. C.*
Carter, Ethel Suzanne Ph. B., University of Wisconsin	*Lancaster*
Cary, Marie B. A., University of Wisconsin	*White Cloud, Kas.*
Case, Helen Alice Ph. B., University of Wisconsin	*Milwaukee*
Casey, Cyrus Ambrose B. A., University of Wisconsin	*Watertown*
Cassiday, Hugh B. A., Central University of Kentucky	*Richmond, Ky.*
Cattell, James L. B. A., Bucknell University	*Madison*
Charter, Lena Mabel B. S., West Virginia University	*Ravenswood, W. Va.*
Chinn, Aubyn B. A., State University of Kentucky	*Frankfort, Ky.*
Chworowsky, Karl Moses Christian g B. A., Wartburg College	*Madison*
Clapp, Frank Leslie g M. A., University of Illinois	*Madison*
Clark, Anabel W. M. S., University of Pennsylvania	*Germantown, Pa.*
Clark, Arthur John B. A., University of Wisconsin	*East Lansing, Mich.*
Clevenger, Arthur Wilbur B. S., Earlham College	*Muncie, Ind.*
Cochran, Helen Finney B. A., Oberlin College	*Cincinnati, O.*

Cockrell, Emerson Tracy — *Tobinsport, Ind.*
B. A., Franklin College

Conlon, May Frances — *Grand Rapids, Mich.*
B. A., University of Michigan

Cook, Henry Allen — *Madison*
B. A., University of Wisconsin

Cooke, Reginald Bancroft g — *Santa Barbara, Cal.*
M. A., University of California

Coon, Frances Catherine — *Rhinelander*
B. A., University of Wisconsin

Cooper, Grace Bernice — *Walworth*
B. A., Beloit College

Cope, Ella Mae — *Hamilton, O.*
M. A., University of Cincinnati

Corder, Charlotte Frances — *Corder, Mo.*
M. A., University of Missouri

Couden, Margaret Turpin — *Indianapolis, Ind.*
B. D., Iowa State Normal

Coulson, Albert Arthur — *Erwin, S. D.*
B. A., Yankton College

Courleux, Ferdinand John — *Cape Girardeau, Mo.*
B. P. E., Y. M. C. A. College

Courleux, Lydia Marie — *Cape Girardeau, Mo.*
B. A., Missouri State Normal School

Craig, Wade Stanley — *Kirksville, Mo.*
Ph. B., Missouri State Normal School

Crawford, Arch — *Springfield, S. D.*
M. A., University of Indiana

Cullon, Edward Northcraft — *Birmingham, Ala.*
Ph. B., University of St. Louis

Curtis, Harry Alfred g — *Sedalia, Colo.*
M. A., University of Colorado

Daland, John Norton g — *Milton*
B. A., Milton College

Daugherty, Lewis S. — *Kirksville, Mo.*
Ph. D., Ill. Wesleyan University

Davies, Henry Richard g — *Madison*
B. A., University of Oregon

Davis, Helen Emma — *Madison*
B. A., University of Wisconsin

Davis, James E. — *Barneveld*
M. A., University of Wisconsin

Deaton, Eula Weston — *Chicago*
M. A., University of Mississippi

DeMombrou, Mary Pansy — *Horse Cave, Ky.*
Ph. B., Greenville College

Detweiler, Lois — *Aledo, Ill.*
B. A., William & Vashti College

DeVries, Louis Peter — *Madison*
Ph. D., University of Wisconsin

Dexter, Elise — *Madison*
B. A., University of Wisconsin
Dexter, Emily Smith — *Ashland*
B. A., Ripon College
Dickinson, Adra — *Cincinnati, O.*
B. A., University of Cincinnati
Diez, Max — *St. Louis, Mo.*
M. A., Washington University
Dodge, Florence Adele — *Madison*
M. A., University of Wisconsin
Douglas, Ruth — *Postville, Ia.*
B. A., University of Wisconsin
Downey, Ezekiel Henry — *Madison*
M. A., University of Iowa
Doyle, James Harold g — *Madison*
Ph. B., University of Wisconsin
Duffus William McGlashan g — *Madison*
B. A., Leland Stanford University
Dunlap, Edna C. — *Chicago, Ill.*
B. A., University of Chicago
Durgan, Effie — *Monmouth, Ia.*
B. A., Kingfisher College
Durkee, Florence Ella — *St. Paul, Minn.*
B. A., Leland Stanford University
Dushane, Donald — *Madison, Ind.*
B. S., Hanover College
Dysart, Lulu M. — *Milwaukee*
B. A., Ripon College
Earle, Gladys — *Des Plaines, Ill.*
M. A., Wellesley College
Eastman, Clarence Winans — *Great Falls, Mont.*
B. S., University of Wisconsin
Eberhardt, Vera L. — *Salina, Kas.*
B. A., Kansas Wesleyan University
Ebling, Emily Rebecca — *Williamsport, Pa.*
B. A., Bucknell University
Edwards, Edgar Matthews — *Elwood, Ind.*
B. A., Franklin College
Edwards, Martha Letitia g — *Madison*
M. A., University of Wisconsin
Elder, Mary Louise — *Argenta, Ill.*
B. A., James Millikin University
Ellis, Dora May — *Fairmount, Ind.*
B. A., Earlham College
Ellsworth, Sarah Frances — *Madison*
B. A., University of Wisconsin
Ely, Elsie May — *Fayette, O.*
B. A., Oberlin College
Emmet, Boris — *Madison*
B. A., University of Wisconsin

Essex, Lou R. *St. Louis, Mo.*
M. A., Washington University
Evans, Alice *Madison*
B. A., University of Wisconsin
Evans, Iva *Brookings, S. D.*
B. S., South Dakota State College
Evans, Julia Farwell *Oak Park, Ill.*
B. A., Northwestern University
Ewington, Alfred *Los Angeles, Cal.*
B. A., McKendree College
Fallis, Lewis Dwight *Seattle, Wash.*
B. A., University of Washington
Fancolly, Etta Pearl *Des Moines, Ia.*
B. Di., Drake University
Fasten, Nathan g *New York City*
B. S., College of City of New York
Faucett, Frances *Laurium, Mich.*
B. A., University of Wisconsin
Fauerbach, Angelica Anne *Madison*
B. A., University of Wisconsin
Federer, Francis Albert l s *Waukesha*
Ph. G., University of Wisconsin
Feik, Lewis William *Mendota, Ill.*
B. A., Northwestern College
Ferry, Lily M. *Louisville, Ky.*
B. S., University of Chicago
Fife, Gordon Stanley *Edmonton, Canada*
B. A., Queens University, Kingston, Canada
Fitzsimmons, Ethel *Sandy Lake, Pa.*
B. A., University of Pittsburg
Flagg, Elizabeth Gorsline *Kansas City, Kans.*
B. A., University of Wyoming
Flick, Ernest Clinton *Augusta*
B. A., University of Wisconsin
Flynn, Margaret Sutherland *Columbus, O.*
Ph. B., Ohio State University
Flynn, Michael Henry m *Hartford*
B. A., University of Wisconsin
Fogle, David Edgar *Georgetown, Ky.*
M. A., Harvard University
*Foote, Lucy Dodds *St. Louis, Mo.*
B. A., Park College
Forbes, Annie *Hutchinson, Kas.*
B. A., Kansas University
Forsman, Guy Chandler *Sumner, Ia.*
Ph. B., Upper Iowa University
Fowler, Grace Mary *Kankakee, Ill.*
B. A., Northwestern University

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Fox, Elizabeth Fredrica — *Racine*
M. A., University of Wisconsin
Fox, Ruth Mary — *Racine*
M. A., University of Wisconsin
Francis, Charlotte Ann — *Honeaye Falls, N. Y.*
M. A., Columbia University
Franke, Gretchen Malivine — *Bound Brook, N. J.*
B. A., Barnard College
Franz, Jessie — *Beloit*
B. A., Beloit College
Freeman, Grace — *Aurora, Ill.*
B. A., University of Chicago
Fritschel, George John — *Dubuque, Ia.*
B. A., Thiel College
Froggatt, Lillian Mary — *Middleton*
B. A., University of Wisconsin
Fry, Thornton, Carle g — *Findlay, O.*
B. A., Findlay College
Fulcher, Gordon Scott — *Evanston, Ill.*
Ph. D., Clark University
Furnas, Philip William — *Valley Mills, Ind.*
B. A., Earlham College
Furness, Mary B. — *Cincinnati, O.*
B. A., University of Cincinnati
Gabrielson, Hattie — *Harcourt, Ia.*
B. A., Morningside College
Galbraith, Anne White — *Williamsport, Pa.*
M. A. Bucknell University
Galbraith Mary Earley — *Williamsport, Pa.*
B. A., Bucknell University
Galland, Joseph Stanislaus g — *Madison*
B. S., University of Maine
Galloway, Grace — *Courtland, Kas.*
B. A., Washburn College
Gamble, Sarah Estella — *Milwaukee*
B. A., University of Wisconsin
Gardiner Charlotte G. g — *Madison*
B. A., University of Wisconsin
Gault, Bernie Harrison — *Shelbyville, Ill.*
B. A., Central College (Fayette, Mo.)
Gauvran, Ethel Harned — *Jamaica, L. I.*
M. A., University of Wisconsin
Gillen, Charles Frederick — *Moncton, New Brunswick, Can.*
Ph. D., Georgetown University
Glasier, Edwin Lee — *Algoma, Ia.*
B. A. State University of Iowa
Goddard, Mabel — *Freeport, Ill.*
B. A., University of Wisconsin
Goodchild, Elta Anne — *Havelock, Ia.*
B. A., Morningside College

Goodrich Grace Gertrude — *Ripon*
M. A., University of Wisconsin
Goodyear, Henry Marks — *Morton, Ill.*
B. A., Illinois State University
Grass, Dora Ellen — *La Crosse, Kans.*
B. S., Ottawa University
Graul Edward John — *Independence*
B. S., University of Wisconsin
Green, Ivy — *Mora, Minn.*
B. A., Milton College
Green, Mary Elizabeth — *Evansville*
Ph. B., Greenville College
Grenbel Otto Washington — *Pittsburg, Pa.*
M. A., University of Wisconsin
Gronert, Theodore G. — *Prairie du Chien*
B. A., University of Wisconsin
Grosswege, Bertha Regina — *Avilla, Ind.*
B. A., University of Indiana
Groves Regina Eunice — *Madison*
B. A., University of Wisconsin
Hagin, Elizabeth G. — *Eupora, Miss.*
B. A., Mississippi Industrial Institute and College
Hall, Lucy Elizabeth — *Newton, Ia.*
Ph. B. Drake University
Halsey, Elizabeth — *Ft. Atkinson*
Ph. B., University of Chicago
*Hamilton, Frederick Rutherford
Ph. B., University of Wisconsin
Hamilton, Maud g — *Emporia, Kans.*
B. A. Cornell University
Hannum Alva Davis — *Sabina, O.*
B. A., Lima College
Hansen, Alvin Harvey g — *Viberg S. D.*
B. A., Yankton College
Hanson, James g — *Sturgeon Bay*
B. S., University of Wisconsin
Hardacker, Alys Lauretta — *Appeton*
B. A., Lawrence College
Hardman, Mary Alma — *South Bend, Ind.*
B. S., University of Chicago
*Hargrave Florence Villrite — *Wilton*
Ph. B., University of Wisconsin
*Harris, Ethel Ava — *Kilbourne*
B. A., Lawrence College
Harris, Frank Raymond — *Greenfield, O.*
M. A., Harvard University
Harrison, Albert Edward — *Alta, Ia.*
B. A., Parsons College

*Advanced course for the training of teachers.

Harrold Lidie — *Damascus, O.*
M. A., Columbia University

Hartman, Henry G. — *Walnut Hills, O.*
Ph. D., Columbia University

Hathaway, William Henry — *Grand Rapids, Mich.*
B. A., University of Michigan

Hawes, Ernst Basil — *Columbus, O.*
B. S.

Hearon, Richard Augustus — *Ft. Worth, Texas*
B. A., George Peabody College

Hedgcock, Charles B. — *Marshfield*
B. S., Knox College

Hedges, Clair Frank — ***Neenah***
Ph. B., University of Wisconsin

Heilman, Ernest A. — *Redwood Falls, Minn.*
M. A., University of Wisconsin

Henderson, Martin Perry g — *Clifton, Idaho*
B. A., University of Wisconsin

Henn, Frank Eugene — *Ouray, Colo.*
B. S., Valparaiso University

Hering, Hugo H. — *Rockford, Ill.*
B. A., University of Wisconsin

Hermann, Cornelia Josephine — *Ottumwa, Ia.*
Ph. B., University of Iowa

Herrick, Louis Powell — *Madison*
M. A., University of Wisconsin

Hightower, Henderson Grover — *Covington, Ky.*
B. A., Ohio State University

Hill, Edith Abigail — *Redlands, Cal.*
B. A., Leland Stanford University

Hillesheim, Clara m — *Sleepy Eye, Minn.*
M. A., University of Minnesota

*Hillman, Louis Frederick g — *Fond du Lac*
M. A. Indiana University

Hitchcock, Raymond Royce — *Grand Forks, N. D.*
M. A., Northwestern University

Hodge, Bessie Leah g — *Elkton, S. D.*
B. A., Dakota Wesleyan University

Holkesvig, Genevieve Marie — *Fargo, N. D.*
B. S., North Dakota Agricultural College

*Hollister Lisle Johnson — *Evansville*
B. A., University of Wisconsin

Holmes, Luella May — *Evansville*
B. A., University of Wisconsin

Holt, Frank Oscar — *Edgerton*
Ph. B., University of Wisconsin

Holt, Harris Hazelton — *Delafield*
M. A., University of Wisconsin

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*Advanced course for the training of teachers.

Hooton, Ernest Albert — *Delavan*
Ph. D., University of Wisconsin
Hopkins Mary Wright — *Pueblo, Colo.*
B. A., University of Wisconsin
Horton, Ethel Sue — *Baraboo*
B. A., Beloit College
Houser, Ethel g — *Van Wert, O.*
B. A., Miami University
Howard, Edna — *Denver, Colo.*
B. A. University of Wisconsin
Howard, Russell Samuel — *Ottawa, Ill.*
B. S., University of Illinois
Howell, Sara Jean — *Cincinnati, O.*
B. A., University of Cincinnati
Hoyt, Amy Glorane — *Augusta*
B. A., University of Wisconsin
Hoyt Grace Elizabeth — *Madison*
M. A., University of Wisconsin
Hubbard, Joseph Bradley — *Madison*
B. A., University of Wisconsin
Hudson, Myrtle Eleanor — *Lincoln, Neb.*
B. A., University of Nebraska
Huestis, Alice Maude — *Greencastle, Ind.*
Ph. M., University of Chicago
Hughes, Fred P. — *Shelbyville, Ind.*
B. A., Central Normal College
Hughes, Lillian Delphine — *Mankato, Minn.*
B. A., University of Minnesota
Hull, Helen Marjorie — *Oberlin, O.*
B. A. Oberlin College
*Hummer, John Earl — *Potsdam, N. Y.*
B. S., Bucknell University
Humphreys, Harry Christopher — *Orange Cave, W. Va.*
B. A., West Virginia University
Hungerford, Charles William g — *Fayette, Ia.*
B. S. Upper Iowa University
Hunt, Ruth E. — *Abilene, Kans.*
M. A., University of Kansas
Hutchison, Anne Phillips — *Mineral Point*
B. A., University of Wisconsin
Iles, Louise Bryant — *Sioux Falls, S. D.*
B. A., Carleton College
Ingraham, Olin g — *Brooklyn, N. Y.*
M. A., Columbia University
Irish, Elizabeth Hibbard — *La Crosse*
B. A., Milwaukee College
Isely, Chris Robert — *Monroe*
B. A., Lawrence College

*Advanced course for the training of teachers.

James, Mary Elizabeth — *Wales*
B. A., University of Wisconsin
James, Victoria — *Eau Claire*
B. A., University of Wisconsin
Jameson Kate Wetzel g — *Madison*
M. A., Ohio Wesleyan University
Jefferson, Charlotte Clara — *Bingham Lake, Minn.*
B. A., University of Minnesota
Jenson, Joseph — *Logan, Utah*
B. A., Brigham Young College
*Jerome, Harry — *Omaha, Neb.*
B. A. University of Omaha
Johnson, Katherine Eva — *Milwaukee*
B. A., Oberlin College
Johnson, Lena May — *Hudson, Mich.*
B. A., University of Michigan
Jones, Bertha Marie — *Champaign, Ill.*
B. A., University of Illinois
Jones, Edward Huntling — *E. Hampton, N. Y.*
B. A., Lafayette College
Jordan, John Henry — *Wayzata, Minn.*
M. A., University of Wisconsin
Journey, Rockwelle Cresap — *Nevada, Mo.*
M. A., University of Missouri
Judd, Roy Clair g — *Madison*
M. S., University of Wisconsin
Karch, Charles Henry — *Lemmon, S. D.*
B. S., Valparaiso University
Karnopp, Ella A. — *Almond*
B. A., Lawrence College
Keller, William Jacob g — *Madison*
M. A., Northwestern University
Kincaid, Charles Franklin — *Franklin, Ind.*
M. A., Brown University
Kitchell, Gertrude — *Topeka, Kans.*
B. A., University of Wisconsin
Knaplund, Paul g — *Ostrander, Minn.*
B. A., Red Wing Seminary
Kneeshaw, Robert Stanley — *Pembina, N. D.*
B. A., University of North Dakota
Koepke, William Charles — *Waukesha*
Ph. B., University of Wisconsin
Kowalke, Erwin Ernst — *Watertown*
B. A., Northwestern College
Krickenberger, William — *Greenville, O.*
B. A., Miami University
Krienke, Edmund Otto — *Stevens Point*
Ph. B., University of Wisconsin
Krummel, Charles Albert g — *Nokomus, Ill.*
Ph. M., Syracuse University

Kuhlow, Otto Fred — *Watertown*
B. A., Northwestern College (Watertown)
Kunz, Herman W. — *Glendale, O.*
M. A., Western Reserve University
Kuykendall, Alfred g — *Twin Bluffs*
B. A., University of Southern California
Kyper Guy D. — *Washburn*
B. S., Tri-State College
Lane, Frances Adams — *Palmyra, Md.*
B. A., Park College
Langenbeck, Clara — *Baltimore, Ind.*
B. S., University of Cincinnati
Langendorf, Elizabeth S. g — *Camden, N. J.*
B. A. Mt. Holyoke College
Langenhan, Henry August g — *Madison*
B. S., University of Wisconsin
Lantz, Park Gresh — *Petoskey, Mich.*
B. A., Indiana University
Larsen, Thomas Arthur — *Elgin, Ill.*
B. A., Olivet College
Law, George Alexander — *Menomonie*
B. S., Carleton College
Leach, Irmagarde B. — *Chicago, Ill.*
B. A., Northwestern University
Lebert, Eugene N. g — *Madison*
M. A., University of Wisconsin
Lehmiller, Ruth — *Canton, O.*
B. A., Wilson College
Lens Catharine Leipoldt — *Kenton, O.*
B. A., Miami University
Libby, Barnem — *Scranton, Pa.*
B. S., Princeton University
Lieurance, Alice Elizabeth — *Springfield, Mo.*
B. A., Drury College
Lilly, Jennie — *Portland, Ore.*
B. A., University of Oregon
Limper, Louis Henry g — *Kenosha*
B. A., German Wallace College
*Long, Lyda — *Elsberry, Mo.*
B. A., Washington University
Lorenz, Eleanor Mary — *Cincinnati, O.*
B. A., University of Cincinnati
Lorenzen, Lilly Elfreda — *Madison*
Graduate of Schleswig Teachers' Seminary
Loshinski John Nicholas g — *Princeton*
M. A., Ripon College
Lowcherey, Charles Williams — *Madison*
B. A., West Virginia University

*Advanced course for the training of teachers.

Luke, George Leroy g	*Junction, Utah*
B. A., Brigham Young University	
Lundquist, Walter Elroy	*Galesburg, Ill.*
B. S., Knox College	
Lytle Clarice May	*Evanston, Ill.*
Ph. B., Northwestern University	
McCarthy, Edward F.	*Cortland, N. J.*
B. S., University of Michigan	
McClintock, Robert David	*LaJunta, Colo.*
B. A., Geneva College	
McCordie, Ada	*Zion City, Ill.*
B. A., Zion College	
McCoy Charles	*Bloomington, O.*
B. A., Miami University	
McHenry, Mabel De Walsh	*Kirksville, Mo.*
B. S., Missouri University	
McKnight, Nannie Jacobs	*Washington, D. C.*
M. A., George Washington University	
McLain, Madge	*Burlington, Ia.*
B. A. Monmouth College	
McMullin, Jennie Willing g	*Terre Haute, Ind.*
Ph. B., University of Chicago	
McMurray, Donald Le Crone g	*DeKalb, Ill.*
M. A., University of Wisconsin	
Magnus, John Frederick	*Glen Flora*
B. A., St. Olaf College	
Mahan, Marion Silvertice	*Danville, Ind.*
B. A., Indiana University	
Mann, Charles August g	*Madison*
M. S., University of Wisconsin	
Marberry, James Oscar	*Robinson, Ill.*
B. A., Ewing College	
Maris, Paul V.	*Portland, Ore.*
B. S., Pacific College	
Marsh, Roland Osborne	*Antigo*
B. A., Lawrence College	
Martindale, Katharine	*La Crosse*
B. A., Smith College	
Mason, Dorothea	*Somerset*
B. A., University of Minnesota	
Mason, Elizabeth Browning	*Washington, D. C.*
B. A., Wellesley College	
Mason, Harold C.	*Somerset*
B. A., University of Minnesota	
Matheny, Edith French	*Springfield, Ill.*
Ph. B., University of Chicago	
Mathews, Sarah E.	*Beloit*
B. A., Smith College	
Maxson, Mabel	*Milton Junction*
M. A., University of Wisconsin	

Meloche, Clifford Cyrille g M. A., University of Wisconsin	*Madison*
Melvin Carl M. M. A., University of Minnesota	*Minneapolis, Minn.*
Miller, Benjamin Hillon B. A., E. T. N. College, Texas	*Commerce, Texas*
Miller, Edgar Allan B. A., Ohio State University	*Pataskala, O.*
Miller, Emerson R. g M. S. University of Michigan	*Auburn, Ala.*
Miller, Joe Hoynes B. S., Georgetown College	*North Pleasureville, Ky.*
Miller, Paul Gerard g M. A., University of Wisconsin	*Madison*
Miller, Raymond F. M. A., University of Kansas	*Emporia, Kans.*
Mitchell, Elmer Dayton B. A., University of Michigan	*Grand Rapids, Mich.*
Moore, Edith B. A., University of Wisconsin	*Merrillan*
Morgan, John William g B. A., Richmond College	*Madison*
Morgan, Riley Earl B. A., Southwestern College	*Webber, Kans.*
Morris Albert Nathan B. P. E., Chicago Training School	*Sioux City, Iowa*
Mossman, Madge Cleve Ph. B., Denison University	*Newark, Ohio*
Mothersill, Mark Henry B. A., University of Michigan	*Holly, Mich.*
Mulligan, Marie Louise B. A. Ohio State University	*Columbus, O.*
*Murphy, Edna Pierce B. A., Gustavus Adolphus College	*Madison, S. D.*
Murphy, Leonard J. B. S., Northwestern University	*Fairland, Ill.*
Nardin, Frances Louise M. A., Missouri State University	*Kansas City, Mo.*
Nebel Walter g M. S., University of Wisconsin	*Madison*
Nehf, Harley Wesley g B. A., Lawrence College	*Menomonee Falls*
Nelson, Alice J. B. A., University of Wisconsin	*Oconomowoc*
Nelson, Sidee Esther B. A., University of Illinois	*Princeton, Ill.*
Newell, Jane Isabel g M. A., University of Wisconsin	*Philadelphia, Pa.*

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Neystrom, Paul Henry g — *Madison*
Ph. M., University of Wisconsin
Nicholson, Hubert Maurice — *Muskogee, Okla.*
B. S., University of Oklahoma
Niles, Sarah Isabel — *La Porte, Ind.*
B. A., University of Wisconsin
Noble, Merna — *Highland, Kans.*
M. A., Highland College
Nordlie, Herman Clarence — *Fergus Falls, Minn.*
M. A., University of Wisconsin
Nugent, Milton Benjamin — *Elnora, Ind.*
B. A., Indiana State Normal College
Oakey, Isabelle Ogden — *Terre Haute, Ind.*
Ph. B., University of Chicago
Ordeman, George Frederick — *Frederick, Md.*
B. S. Washington and Lee University
Orvis, Julia G. — *Dubuque, Ia.*
B. A., Oberlin College
Owen, Gladys g — *Madison*
B. A., Smith College
Owen, Ralph Albert Dornfeld — *Watertown*
M. A., Harvard University
Parmenter, Charles L. g — *Madison*
M. A., University of Southern California
Parry, Katherine Janette — *Lime Springs, Ia.*
Ph. B., Upper Iowa University
Parson, Eric — *Groton, Mass.*
B. A., Harvard University
Patten, Edith Sylvia — *De Kalb, Ill.*
Ph. B., University of Wisconsin
Patterson, Walter L. — *Kiel*
B. A. University of Wisconsin
Pearson, Clara C. — *Stuart, Ia.*
B. A., Cornell College
Pease, Mary Ennever — *Wauwatosa*
B. S., University of Wisconsin
Peirce, Ethel Girdwood — *Madison*
M. D., Johns Hopkins University
Peltz, Alberta — *E. Orange, N. J.*
B. A., Wellesley College
Perkins, Stella F. — *Wilmette, Ill.*
B. S., Northwestern University
Perley, M. Elizabeth — *Fargo, N. D.*
B. A., Washington State University
Peterson, Aslak Samuel — *Oxfordville*
B. A., Luther College
Peyton, John Ruthven Cameron — *Columbus, Miss.*
B. A., University of Mississippi
Pfeifer, Harriet Katherine — *Chillicothe, O.*
Ph. B., Wooster University

Pfuhl, Sophie Augusta — *Louisville, Ky.*
B. A., Bryn Mawr College
Pierce, D. Harry — *Sioux Falls, S. D.*
B. S., St. Lawrence University
Pierson, Merle — *Milwaukee*
B. A., University of Wisconsin
Pietenpol, Henry William — *Waupun*
M. A., Central University of Iowa
Pietenpol, William Brasser g — *Waupun*
B. A., Central University of Iowa
Poague, Henry Grigsby — *Lexington, Va.*
Graduate, Virginia Military Institute
Pollock, Christine Mina — *Fargo, N. D.*
M. A., University of Wisconsin
Porter, Annie A. — *Lake Minnetonka, Minn.*
B. S., University of Wisconsin
Powell, Nellie Virginia — *Woodview, Va.*
Ph. M., University of Chicago
Powell, Parker Preston — *Yantley, Ala.*
M. S., Alabama Polytechnic Institute
Powers, Marion Louise — *Grand Rapids, Mich.*
B. A., University of Michigan
Pray, Carl Erek — *Milwaukee*
B. L. Olivet College
Price, Elizabeth Johnson — *Mexico, Mo.*
B. A., Hardin College
Price, Emory J., Jr. — *Elgin, Ill.*
Ph. B., Grinnell College
Pritchard, Fred J. — *Washington, D. C.*
B. S. Nebraska University
Prose, Charles Thomas — *Zanesville, O.*
B. S., Denison University
Raddatz, William G. g — *Madison*
B. A., Lawrence College
Ramsdell, Susan Griffith — *Austin, Tex.*
B. A., University of Texas
Ranseen, Clarence Eugene — *St. James, Minn.*
B. A., Gustavus Adolphus College
Rath, William David — *Almond*
B. A., Lawrence College
Ray, George Rankin — *Lake Mills*
M. A., University of Wisconsin
Ray, Truly Bernice — *Bloomington, Ind.*
B. A., Indiana University
Regier, Cornelius C. — *Moundridge, Kans.*
M. A., Kansas University
Reilly, Emma C. — *Cincinnati, O.*
B. A., University of Cincinnati
Reitzel, Charles Ervin — *Elmira, N. Y.*
B. S., University of Pennsylvania

Reynolds, Azile Belle — *Chicago, Ill.*
Ph. B., Baird College
Reynolds Candace, W. — *Grand Rapids, Mich.*
M. A., University of Michigan
Reynolds, Everett P. — *Platteville*
B. S., Olivet College
Richards, Esther Loring — *Sherborn, Mass.*
B. A., Mt. Holyoke College
*Riley, John William — *Hayward*
Ph. B., University of Wisconsin
Rippert, James Albert — *Chisholm, Minn.*
M. P., Johns Hopkins University
Roark, Raymond Jefferson — *Richmond, Ky.*
M. S., University of Illinois
Robert, Joseph Clarke — *Agricultural College, Miss.*
M. D., University of the South
Robinson, Agnes Louise — *Council Bluffs, Ia.*
Ph. B., University of Iowa
Robinson, Clara — *Springfield, Ill.*
Ph. B., University of Chicago
Robinson, Florence Porter g — *Milwaukee*
M. A., University of Wisconsin
Robinson, Winifred, J. — *Poughkeepsie, N. Y.*
Ph. D., Columbia University
Rodenbaeck, Louise — *New Holstein*
B. A., Oberlin College
Rodgers, Frances G. — *Texarkana, Ark.*
M. E., Ralston University
Roehm, Norma R. — *Ashland*
B. A. University of Wisconsin
Rogers, Emma — *Farina, Ill.*
B. A., Milton College
Ronne, Belva Louise — *Racine*
B. A., Ripon College
Rood, Warren Ray — *Milton*
B. A., Milton College
Rose, Elizabeth Austin — *Carthage, Mo.*
B. A. De Pauw University
Roseman, William Packard — *La Crosse*
Ph. B., University of Wisconsin
Rossberg-Leipnitz, Elizabeth — *Madison*
B. A., University of Wisconsin
Rover, Paul Philip — *Cincinnati, O.*
M. A., University of Cincinnati
Rumsey, Nellie A. — *Spring Valley, Minn.*
B. S. Carleton College
Runzler, Arthur Charles — *Milwaukee*
B. A., University of Wisconsin

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Runzler, William T. B. A., University of Wisconsin	*Milwaukee*
Rupert, Frank Everett B. S., University of Michigan	*Geneva, N. Y.*
Saby, Anna Gunilla M. A., University of Wisconsin	*Baldwin*
*Salley, Nathaniel Moss B. A., Wofford College	*Tallahassee, Fla.*
Saltus, Charles N. B. A., Colorado Teachers' College	*Sterling, Colo.*
Samuels, Alexander F. B. A., University of Wisconsin	*West Salem*
Sanzenbacher, Elizabeth B. Pd., Ohio University	*Piqua, O.*
Sauter, Jacob Philip B. A., Indiana University	*Brookville, Ind.*
Schaeffer, Frank Frederick B. A., Yankton College	*Langford, S. D.*
Schaper, Lydia Leonora B. A., Ripon College	*Plymouth*
Schatz, Walter Phillip g Ph. B., University of Wisconsin	*Wayside*
Schladweiler, Katharine B. A., University of Wisconsin	*Madison*
Schlafer, George Ezra Ph. B., Northwestern College	*Menomonee Falls*
Schmidt, Irma Nathalie B. A., University of Wisconsin	*Wausau*
Schnuchel, Francis Albert B. A., University of Wisconsin	*Kenosha*
Scholes, Bonnie Elizabeth g B. S., University of Wisconsin	*Green Lake*
*Schreiner, Hilder Betty B. A., University of Wisconsin	*Westby*
Schrimshaw, Stewart g B. A., Ohio Wesleyan University	*Madison*
Schubring, Selma Langenhan g M. A., University of Wisconsin	*Madison*
Schuette, Henry August g M. S., University of Wisconsin	*Green Bay*
Schulz, Lena B. A., Wittenberg College	*Richmond, Ind.*
*Schuster, Edith Emma B. A., University of Wisconsin	*Madison*
Schwalbe, Gertrude Helen Ph. B., University of Wisconsin	*Milwaukee*

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Schweitzer, Louise — *Grand Rapids, Mich.*
B. A., University of Michigan
Seymour, Elsie Sheldon — *Cleveland, O.*
B. A., Western Reserve University
Sheafor, Jean Thomas — *Richland Center*
B. A., University of Wisconsin
Sheets, Olive Amy g — *Columbus, O.*
B. S., Ohio State University
Shepard, David Arthur — *Racine*
B. A., Eureka College
Sherry, Susan — *St. Louis, Mo.*
B. A., Vassar College
*Shibe, Albert Carlton — *Jacksonville, Ill.*
B. A., Illinois College
Shinkle, Lulu Edith — *Cincinnati, O.*
B. A., Oxford College
*Shortridge, Wilson Porter — *Minneapolis, Minn.*
M. A., University of Wisconsin
Shryock, Gertrude — *St. Louis, Mo.*
B. A., Washington University
Simon, Hollis B. — *Westfield, Ill.*
B. S., Otterbein University
Simons, Sarah Emma — *Washington, D. C.*
M. A., Leland Stanford University
Simpson, Thomas Marshall g — *Madison*
M. A., University of Wisconsin
Sister Mary Clementine — *Sinsinawa*
Ph. B., University of Chicago
Sister Mary Coronata Schardt — *Sinsinawa*
B. A., Washington University, St. Louis
Slagg, William Edgar — *Albion*
Ph. B., University of Wisconsin
Slocum, Percy Wilfrid — *Fond du Lac*
B. A., University of Wisconsin
Smeaton, Margaret Anne — *Madison*
Ph. B., University of Wisconsin
Smith, Adeline M. — *Naples, N. Y.*
B. A., University of Michigan
Smith, Anna Du Pre — *Madison*
B. A., University of Wisconsin
Smith, Gilbert Morgan — *Beloit*
B. S., Beloit College
Smith, Justine Mabel — *Lake Forest, Ill.*
B. A., Lake Forest College
Smith, Lucile Douglas — *Petoskey, Mich.*
B. A., Transylvania University
Smith, Marie L., g — *Monmouth, Ill.*
B. A., Knox College
Smith, Mark Anson g — *Madison*
M. A., University of Wisconsin

Smithey, William R. *Petersburg, Va.*
M. A., Randolph Macon College
Snow, May Manghan g *Madison*
B. S., Utah Agricultural College
Snyder, Arthur Dodd *Easton, Pa.*
B. A., Lafayette College
Soland, Johanna Grace *Blair*
M. A., University of Wisconsin
Soupart, Sylvia Josephine *Lafayette, Ind.*
B. A., Indiana University
Spalding, Fred Clifton *St. Louis, Mo.*
B. S., Hanover College
Spencer, Mamie *Slater, Mo.*
B. S., Ohio Wesleyan University
Sperle, Diana Henrietta *McFarland*
B. A., University of Wisconsin
Spooner, Lucia C. *Superior*
Ph. B., University of Wisconsin
Springsted, Clara Bell *Albany, N. Y.*
B. A., Mount Holyoke College
Squires, Benjamin Mark g *LaFarge*
B. A., University of Wisconsin
Staley, Forest Henry *Madison*
B. A., University of Wisconsin
Stanley, Clinton F. *Carlos, Ind.*
B. A., Earlham College
Stebbins, Millicent *Omaha, Neb.*
M. A., University of Illinois
Stecker, Hannah Dora *Cincinnati, O.*
B. A., University of Cincinnati
Steele, Robert M. *Brockwayville, Pa.*
Ph. B., Bucknell University
Steil, William N. g *Madison*
Ph. B., University of Wisconsin
Stephens, Ethel *Baldwin, Kans.*
B. A., Baker University
Stephenson, Joseph Clark *Terhune, Ind.*
B. S., University of Chicago
Stewart, Walter William *Madison*
B. A., University of Wisconsin
Stewart, William Kerfoot *Indianapolis, Ind.*
B. A., Yale University
Stone, Charles A. R. *Coldwater, Mich.*
B. A., Oberlin College
Sutherland, Eva Blanche g *Tarkio, Mo.*
B. S., Tarkio College
Swan, Harold A. *Galesburg, Ill.*
B. A., Bradley Polytechnical Institute
Swinney, Mary Margaret *Milton*
B. A., Milton College

Talbot, Charles William g M. S., University of Wisconsin	*Pomeroy, Wash.*
Taylor, Eugene g M. A., DePauw University	*Madison*
Taylor, Florence Wills B. A., University of Wisconsin	*Linden*
Taylor, John Wills Ph. B., University of Wisconsin	*Linden*
Taylor, Verna Viola g B. A., De Pauw University	*Columbus, Ind.*
Terry, Mabel M. L., Blue Mountain College	*Edwards, Miss.*
Theisen, William Walter B. S., University of Nebraska	*West Point, Neb.*
Thomas, Ethel M. B. A., University of Wisconsin	*Superior*
Thompson, Charles Goodwin B. A., University of Wisconsin	*Blair*
Thompson, Grace B. A., University of Wisconsin	*Wilmette, Ill.*
Thompson, Harriet A. B. A., Earlham College	*Richmond, Ind.*
Timmons, Christian N. B. A., Indiana University	*Pine Village, Ind.*
Tomhagen, Edith Sommer m B. A., University of Wisconsin	*Chicago, Ill.*
Tonning, Ole M. A., University of Michigan	*Moorhead, Minn.*
Torr, Minnie Almeda Ph. B., De Pauw, University	*Greencastle, Ind.*
Townsend, De Wayne B. A., University of Wisconsin	*Oconomowoc*
Treleven, John Edward B. A., University of Wisconsin	*Madison*
Trent, Ray Shearer g B. D., Vanderbilt University	*Madison*
Trilling, Mildred Frank g B. A., University of Wisconsin	*Clarksville, Tex.*
Trimble, Harold D. B. A., Earlham College	*Bloomingdale, Ind.*
Trout, Elsie Ellen B. A., Franklin College	*Franklin, Ind.*
Tschida, Katherine Anna B. A., University of Wisconsin	*St. Paul, Minn.*
Tucker, Robert H. M. A., William and Mary College	*Louisville, Ky.*
Tucker, Robert Hewitt B. A., Olivet College	*Battle Creek, Mich.*
Tunison, Bessie Dorothy B. A., Lenox College	*Rockford, Ill.*

Vaas, Marie Herfurth g — *Madison*
B. A., University of Wisconsin
Valle, Harry Selde — *Maywood, Ill.*
B. A., Yale University
Van Auken, Clarice — *Clinton, Ia.*
B. A., University of Wisconsin
Van Cleave, Maude Beryle — *Kansas City, Kans.*
B. A., Kansas University
Vergeront, Grace M. — *Madison*
B. A., University of Wisconsin
Vieth, Arnold Anton — *Norwalk*
B. S., Northwestern College
Walker, Leva Belle — *Lincoln, Neb.*
M. A., University of Nebraska
Walker, Mollie Cullom — *Birmingham, Ala.*
B. A., Goucher College
Walter, Etta M. g — *Roanoke, Ind.*
B. A., Indiana State Normal
Waterman, Olney Arthur — *Naperville, Ill.*
B. Pd., Michigan State Normal College
Watson, Stanley Henry — *Thurston, O.*
B. A., Ohio State University
Waugh, Adele Margaret — *St. Louis, Mo.*
B. A., Missouri State University
Waugh, Irene Agnes — *St. Louis, Mo.*
B. A., Missouri State University
Way, Henrietta — *Terra Haute, Ind.*
B. A., Indiana State Normal
West, Edith Randolph — *Savanah, Ga.*
B. A., Wellesley College
West, Miriam Esther — *Milton Jct.*
M. A., Columbia University
West, Myron Chester — *Beloit*
B. S., Beloit College
Whinney, Karl E. — *Salem, O.*
Ph. B., Mt. Union College
Whitaker, Lydia — *Terre Haute, Ind.*
B. A., Indiana University
White, John Robert — *Bellaire, O.*
B. A., Muskingum College
Whitehead, Guy — *Paducah, Ky.*
B. S., Southern Normal School
Whitney, Helen — *Minneapolis, Minn.*
B. A., University of Minnesota
Wildasin, Myrtle Mary — *Springfield, O.*
B. A., Wittenberg College
Wildish, James Elmer — *Springfield, Mo.*
B. A., University of Missouri
Williams, Anna Frances — *Madison*
B. A., University of Wisconsin

Williams, Nina J. *Bloomington, Ind.*
B. A., Indiana University
Wilson, Mary E. *Richmond, Ind.*
B. A., Earlham College
Wilson, Sherman Ray *Culver, Ind.*
B. A., Nebraska University
Winchester, Ralph Edward *Seattle, Wash.*
B. A., Ripon College
Wissler, William Arthur *Cambridge City, Ind.*
B. A., Indiana University
Wittmayer, John George 1 s *Omaha, Neb.*
B. S., Fremont Normal
Wolcott, Grace Geer *Topeka, Kans.*
B. S., Washburn College
Wolf, George P. *Random Lake*
M. A., University of Wisconsin
Wolf, Helen Margaret *Ruthven, Ia.*
B. A., University of Wisconsin
Womack, Richard Elwood *Conway, Ark.*
B. A., University of Arkansas
Wood, Alice Loraine *Washington, D. C.*
B. A., Goucher College
Wood, Meta Aileen *Calwood, Mo.*
B. S., Synodical College
Woodford, Burton Hadley *Alpine, Texas*
M. A., Hamilton College
Works, George Alan *Madison*
M. S., University of Wisconsin
Wright, Elsie Ripley *Alexandria, Ky.*
B. L., Oxford College for Women
Wright, William Russell *Richmond, Ind.*
B. A., Earlham College
Wu, Chai Kao *Soo Chow, China*
B. A., University of Illinois
Wyland, Mary Jane *Harlan, Ia.*
Ph. B. Grinnell College
Yampolsky, Cecil *Madison*
B. S., University of Wisconsin
Yoder, Fred R. *Hickory, N. C.*
B. A., Lenoir College
Young, George P. *Evans, Colo.*
B. A., Colorado Teachers' College
Young, Gertrude Stickney *Brookings, S. D.*
B. A., University of Wisconsin
Young Vive Hall g *Whitewater*
Ph. B., University of Wisconsin
Zeller, Dale *Oregon, Mo.*
B. Pd., Kirksville State Normal School
Zillmer, Raymond Theodore *Milwaukee*
LL. B., University of Wisconsin

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UNDERGRADUATES AND TEACHERS

Aardal, A. Albert	*Moorehead, Minn.*
Achtenhagen, Oscar F.	*Watertown*
Adams, Elmer J.	*Menomonie*
Addison, Katherine Wilson	*Salina, Kans.*
Afflerbach, Robert Valentine	*Perth Amboy, N. J.*
Ahrens, Hazel Campbell	*Milwaukee*
Akin, Cecelia Eilen	*Elroy*
Akin, Margaret Agnes	*Elroy*
Albertz, Hugo W.	*Watertown*
Alexander, Samuel Edward	*Riverside, Cal.*
Allen, Caroline Satterwhite	*Louisville, Ky.*
Allen, Royal Charles	*Milwaukee*
Allyn, Stanley Charles	*Madison*
Almy, Hubert St. Claire	*Milwaukee*
Alston, Faustine ls	*Hamilton, O.*
Altendorf, Florenz George ls	*Port Washington*
Altmeyer, Arthur Joseph	*De Pere*
Alton, Helene Marguerite ls	*Fremont, Mich.*
Anderson, Allyn Taber	*Evanston, Ill.*
Anderson, Elizabeth Neely	*Philadelphia, Pa.*
Anderson, Ethelwyn ls	*Madison*
Anderson, Jean Gillette	*Milwaukee*
Andrews, Roscoe Crum	*Mattoon, Ill.*
Angermeier, Marie	*Duluth, Minn.*
Angvick, Rachel ls, wls	*Ashland*
Anthony, Janet M.	*Gloversville, N. Y.*
Arlitt, Carl Walter	*Austin, Tex.*
Arneson, Ben Albert g	*Madison*
Arnold, Bird Mabel ls, m	*Glen Ellyn, Ill.*
Arnold, William Vernon	*Whitewater*
Ash, Dora Hamilton ls	*Madison*
Ashmore, Lulu Belle	*Charleston, Ill.*
Ashum, Clifford Samuel	*Waupaca*
Atwood, Fannie Elizabeth ls	*Madison*
Aufderheide, Elizabeth Marie	*Toledo, O.*
Badger, Frances William	*Greenville, Miss.*
Badger, Ozro Bruce	*Sullivan, Ind.*
Baer, Bessie T. ls	*Baraboo*
Bailey, Nathaniel Arthur ls	*Ashland*
Baillargeon, Joseph Octave	*Somerset*
Baird, Edgar Alan	*Stanley*
Baker, Bertha Huntington	*Kansas City, Mo.*
Baker, Elizabeth	*Oconomowoc*
Baker, Jennie	*Prairie du Sac*
Baker, W. Bayard	*Pendleton, Ind.*
Baldwin, Marguerite ls	*Milwaukee*
Banker, Louis Curtis	*Richland Center*

Barman, Somendra Chandra Deb	*Bengal, India*
Barnes, John Jr. ls	*Madison*
Barnes, Mary L.	*Morrison, Ill.*
Barnes, Roy Hassett	*Quincy, Ill.*
Barnes, Willis Stewart	*Waterloo, N. Y.*
Barron, Minnie	*Milton Junction*
Barth, Eugene Albert	*Port Washington*
Baskerville, Grace ls	*Madison*
Bassett, Norman Douglas ls	*Chicago, Ill.*
Baum, Harry Neal ls	*Madison*
Beam, John Sherman	*Bloomfield, Ky.*
Bear Helen Judy a	*Madison*
Beath, Sterling Stanley	*Evansville*
Beck, Victor V. ls	*Madison*
Behrens, Gertrude Dorothea ls	*New Richmond*
Beitler, Lewis Gladys ls	*Bloomington*
Bell, Sallie Ladd	*Louisville, Ky.*
Bemis, Mary Scoville ls	*Waupaca*
Benger, Ella Steele	*Grand Rapids*
Bentz, Jeannette Katharine	*Chicago, Ill.*
Berg, Edward	*Milwaukee*
Berg George W.	*Milwaukee*
Berger, Walter Julius ls	*Milwaukee*
Berkey, Carol	*Madison*
Best, Anna	*Milwaukee*
Best, Hattie	*Milwaukee*
Best, Louis Freeman ls	*Madison*
Bickford, Joseph Harold	*Green Bay*
Biddick, Leo E.	*Montfort*
Bielefeldt, Herman A. ls	*Cochrane*
Billman, Ola	*Shelbyville, Ind.*
Bills Clarence Hatfield	*Toledo, O.*
Bishop, Fred G.	*Wonewoc*
Blain, John Simon	*Madison*
Blanding, Virgil Lowrie	*Moline, Ill.*
Blatz, Valentine, Jr. ls	*Milwaukee*
Bleyer, Addison M.	*Madison*
Blodgett, Betsey Maria	*Oak Park, Ill.*
Bohnson, Van Lorens	*Clinton, Ia.*
Boleman, Anna	*Bedford, Ind.*
Bollenbeck, Joseph William ls	*Madison*
Bond Elizabeth M.	*Columbus, Ind.*
Bonneville, William Henry	*La Crosse*
Boorse, Jessica May ls	*Milwaukee*
Booth, Florence E.	*Chicago, Ill.*
Booz, Bess C.	*Washington, Pa.*
Boss, Freeda E. ls	*Superior*
Bowen, Myron William ls	*Richland Center*
Bowers, Jessie Maude	*Lima Center*
Bowles, Anna Bernadine	*Waunakee*

Bowles, Winifred	*Waunakee*
Boyd, William Joseph ls	*Sturgeon Bay*
Boyle, Ruth Murrin ls	*Butte, Mont.*
Bradway, Mark Wilson ls	*Madison*
Brandenburg, Catherine Sarles	*Madison*
Brandt, Tillie Clara ls	*Milwaukee*
Breadner, George	*Victoria, B. C.*
Breitkeutz, Ida M.	*Milwaukee*
Brevig, Olaf Nelson	*Rothsay, Minn.*
Brewer, Everett Robert ls	*Madison*
Brick, Erhardt Charles	*Manitowoc*
Bright George Noyes	*Minneapolis, Minn.*
Brindley, Ben R. ls	*La Crosse*
Brockman, Wills John	*Altemont, Ill.*
Brown, Althea	*Madison*
Brown, Clarence John ls, m	*Plum City*
Brown, Cornelia Yates	*Batavia, Ill.*
Brown, John B. ls	*Madison*
Brown, Louise Withee ls	*Madison*
Brown, Mabel Mary ls	*Platteville*
Brown, Myrtle	*Niagara Falls, N. Y.*
Brown, Raymond	*Rhinelander*
Brumm, Lester Frank ls	*Madison*
Buchholz, Theodore Gustave	*Davenport, N. D.*
Buckmaster, Mary Elinor	*Janesville*
Budd, Emily A.	*Fennimore*
Buell, Helen de Yoe	*Madison*
Buerki, Robin Carl ls, m	*Waukesha*
Bur, Joseph ls	*Green Bay*
Burget. George Emanuel	*Kempton, Ind.*
Burhoe, Brainerd Desaix	*Chicago, Ill.*
Burke, Mary Virginia	*Chicago, Ill.*
Burlingame, Lois ls	*Madison*
Burns, John L.	*Prescott*
Burrell, John Angus ls	*Madison*
Burrows, Benjamin Harrison	*Boardman*
Bush, Maybell Grace	*Malone, N. Y.*
Butts, George Henry ls	*Madison*
Byford, William Holland	*Chicago, Ill.*
Cadwallader. Laura Hanes	*Philadelphia, Pa.*
Calhoun, Helen M. ls	*Glencoe, Ill.*
Campbell, Bernard Thomas	*Hayward*
Campbell, Katherine	*Houston, Tex.*
Cantril, Edna Edith g	*Denver, Colo.*
Carey, Joseph P.	*Mt. Pleasant, Mich.*
Carlson, Paul A.	*Unity*
Carr, Helen M. ls	*River Falls*
Case, Gertrude Temple	*Milwaukee*
Casey. William P.	*Oshkosh*
Cash, Mary Josephine ls	*Superior*

Caswell, Mildred ls	*Ft. Atkinson*
Cauwenberg, Winfred Joseph ls	*Green Bay*
Chai, Chun Lin ls	*Tientsin, China*
Chamberlain, Sarah	*Hancock, Mich.*
Chambers, Annie E.	*Louisville, Ky.*
Chambers, Mabel Mary	*La Farge*
Champeau, Leocadie	*Green Bay*
Chapel, Bert Valentine	*Cedar Rapids, Ia.*
Chapin, Florence Augusta	*Nanticoke, Pa.*
Chave, Ella Bean ls	*Tomahawk*
Chickering, Alfred Dorance ls	*New London*
Christensen, Bernard V.	*Baldwin*
Christensen, Etta O.	*Amery*
Christopherson, Carl S.	*Scandinavia*
Clark, Dorothy E. ls	*Cincinnati, O.*
Clark, Helen Murphy	*Omaha, Neb.*
Clark, Kenneth Dyer e	*Chicago, Ill.*
Clark, Mickle	*Norman, Okla.*
Clarke, David Roland	*Urbana, Ill.*
Clauer, Marie Jane	*Galena, Ill.*
Clements, Mildred Margaretta	*Washington, D. C.*
Cleveland, Carleton	*Madison*
Clifgard, Roy Alvin ls	*Madison*
Clouse, Emma Jeannetta	*Pittsburg, Pa.*
Coapman, Lillian Emily	*Kilbourne*
Cogley, John Martin ls	*Sioux Falls, S. D.*
Colman, Willard Henry	*La Crosse*
Colton, Mabel Adella	*Sheboygan*
Commons, John Alvin ls	*Madison*
Conley, Emmet J.	*Superior*
Connell, Katherine V.	*Chicago, Ill.*
Conover, Harvey	*Hinsdale, Ill.*
Cook, Alonzo C.	*Montfort*
Cook, Clara Rosamond	*De Pere*
Cook, Pearl Frances	*Oberlin*
Cooke, Raymond Denny g	*Eau Claire*
Coon, P. Cordon W.	*Madison*
Coon, Paul Henry ls	*Madison*
Cooper, Inez Beardsley ls	*Madison*
Cowan, James Jones	*Greenville, Miss.*
Cowell, Carolyn Julia	*Clay Center, Kans.*
Cowles, Andrew Grant	*Naperville, Ill.*
Cox, Arthur	*Glenco, Ill.*
Crabtree, Oren Wesley	*Douglas, Neb.*
Craft, Fern Janette a	*Kingsbury, Ind.*
Crandall, John Seneca ls	*Milwaukee*
Creighton, Mary	*Fairfield, Ill.*
Crombie, Mary Esther	*Fall River*
Crowe, Helen Beatrice	*Columbus, Ind.*
Crowl, Ralph S. ls	*Madison*

Crystal, Bessie Kathryne	*Marceline, Mo.*
Cullom, Charles Baldwin	*Birmingham, Ala.*
Cullom, Hattie Louise	*Birmingham, Ala.*
Cullom, Shelby M.	*Chase, Ala.*
Currie, Agnes A.	*Superior*
Curry, Marian	*Louisville, Ky.*
Curtis, Gay Waite	*Janesville*
Daley, Marie Rodgers	*Texarkana Tex.*
Dallwig, Herbert C. ls m	*Milwaukee*
Dallwig, Leon Eugene ls, m	*Milwaukee*
Darnall, Mrs. Roy	*Groton, S. D.*
Davies, John P.	*Racine*
Davies, Llewellyn	*Ashland*
Davies, Nellie Eleanor	*Oshkosh*
Dayton, Ruth Irma	*Chicago*
Decker, Myrtle May	*Roswell, N. Mex.*
Delany, Josephine C.	*Chicago, Ill.*
Denninger, Francis Arthur ls	*Watertown*
Denzler, Verena	*Indianapolis, Ind.*
De Witt, Ray M.	*Montfort*
Diamond, Thomas	*Madison*
Dickinson, Mary Virginia ls	*Madison*
Diehl, Leah L.	*Elroy*
Diehl, Teresa L.	***Elroy***
Dixon, William Waldo	*Eau Claire*
Dobbin, Benjamin Harrison	*Port Chester, N. Y.*
Docken, Clarence Oliver ls	*Mt. Horeb*
Dodds, Eva	*Champaign, Ill.*
Doleysh, LeRoy	*Two Rivers*
Donalds, Elliott Raphael	*Superior*
Donnelly John W. ls	*Beloit*
Douglas, Lee	*Madison*
Douglas, May H.	*Postville, Ia.*
Dow, Lillian J. ls	*Madison*
Downs, Frank Emmett ls	*Hurley*
Duemling, Gerhard Wilhelm ls	*Milwaukee*
Dumesnil, Edward Rowland ls	*Louisville, Ky.*
Dunfield, Blanche Bourcier l	*Madison*
Dunham, Edgar Dio	*Oshkosh*
Dunn, Tsoong Iung ls	*Soochow, China*
Dunwiddie, Alan Warren ls	*Janesville*
DuPertius, Henry, Jr. ls	*Madison*
Dyer, Mary	*Racine*
Dykesten, Emma Amanda	*Madison*
Eames, Prescott W.	*Kansas City, Mo.*
Edmondson, Carrie Belle	*DeKalb, Ill.*
Edwards, Aglae L.	*Galveston, Tex.*
Edwards, Frank Merle ls	*Ft. Atkinson*
Ellian, Elmer R.	*Milwaukee*
Ellis, Charles William	*Bryan, O.*

Elston, Edna Gertrude	*Columbus, Ind.*
Ennis, Lester C.	*Decatur, Ill.*
Estrem, Theodore Adolph	*Petersburg, Neb.*
Eubank, Myrtle Ann	*Madison*
Evans, Clement J. ls	*Evansville*
Falk, Marie Dell	*Hamilton, O.*
Farley, Leverett J.	*River Falls*
Farley, Mary M. ls	*Madison*
Farrell, Cora E.	*Guthrie, Okla.*
Faville, Katherine Ellen ls	*Lake Mills*
Fay, Ivan G.	*Evansville*
Fehlandt, John Carl Jr. ls	*Madison*
Feldenheimer, Paul E. ls	*Portland, Ore.*
Felsher, Augusta Rose ls	*Madison*
Felsher, Hannah ls	*Madison*
Fertig, Clarence H. ls	*Milwaukee*
Feuling, Ellen Marie g	*Madison*
Feustel, Mrs. Robert M.	*Madison*
Fine, Charles W.	*Sheyenne, N. D.*
Fink, Harriet Josephine	*Paris, Tenn.*
Finke, Ida M.	*Dayton, O.*
Finnegan, Charles R.	*La Valle*
Finnigan, R. J.	*Tracy, Minn.*
Fisk, Earl E.	*Green Bay*
Flack, Charles Earl	*Macomb, Ill.*
Flagler, Lawrence Allen	*Eau Claire*
Flanner, Mary Emma	*Indianapolis, Ind.*
Flanner, Mary H.	*Indianapolis, Ind.*
Fletcher, Emily Christine	*Elmhurst, Ill.*
Flint, Rebecca Punchard	*Madison*
Ford, Mary Estelle	*Madison*
Forsman, Oscar Rogers	*Sumner, Ia.*
Fox, Katherine A.	*Chicago, Ill.*
Frank, Fannie Jean	*St. Louis, Mo.*
Frazier, Cecil Austin	*Dresden, Kans.*
Frear, Marguerite	*Madison*
Frederickson, Jean Fyfe l s	*Madison*
Froehlich, Armand L. l s	*Milwaukee*
Frost, Edna Hayes l s	*Almond*
Gabler, Arthur l s	*Highland*
Gallagher, Margaret Elizabeth	*Silver Lake*
Gause, F. Louise	*Greeley, Colo.*
Gavoille, Adele	*Belleville*
Gay, Cecil Vern	*Muskegon, Mich.*
Gede, Gertrude	*Milwaukee*
Gelatt, Arthur Alvin l s	*La Crosse*
Geraldson Elmer S.	*Manitowoc*
German, Grant Arthur	*West Allis*
Getts, Clark Hallam l s, l	*Whitehall*
Gibson, Anna	*Logansport, Ind.*

Gilbert, Chas. Seriver l s	*Wausau*
Gilbert, Max l s	*Milwaukee*
Gilbert, Otto Gustav	*Milwaukee*
Gilbertson, Christine	*Hixton*
Gilbertson, Mildred	*Blanchardville*
Gleick, Harry S. l s	*Webster Groves, Mo.*
Glenn, Elma Gertrude	*Wyalusing*
Glenn, Everett G.	*Minneapolis, Minn.*
Glover, Mary Staunton	*Crawfordsville, Ind.*
Glugla, Paul Joseph	*Antigo*
Godfrey, Alfred Lawrance	*Whitewater*
Golden, Carl W.	*Bellevue, Pa.*
Golden, Harry W.	*Bellevue, Pa.*
Golden, Jennie Alberta	*Marinette*
Gooding, Laurence Earl l s	*Fond du Lac*
Gosselin, Florence Lea	*Green Bay*
Gotham, Edwin Chauncy	*Ladysmith*
Gotsche, Elmer Ferdinand	*Racine*
Gould, Etta l s	*Madison*
Gould, Robert David	*Superior*
Grady, Agnes Scanlon l s	*Madison*
Graham, Adda M.	*Dunavant, Kans.*
Greenbaum, Bertha B.	*Grand Rapids, Mich.*
Grimes, Caroline Magdalen	*Mishwaka, Ind.*
Guenther, Gustave B.	*Chilton*
Guequierre, Jacques Pierre l s	*Milwaukee*
Guggisberg, Carl F.	*Roberts*
Hagopian, Bedros l s	*Madison*
Haley, Camilla Myrtle l s	*Madison*
Hall, Fred Mengo l s	*Enid, Okla.*
Haller, Helene Hermine l s	*Ann Arbor, Mich.*
Halsted, James E. l s	*Baraboo, Wis.*
Halvorson, Adolph Lawrence	*Onalaska*
Hamilton, William James	*Two Rivers*
Hammond, Jane B.	*De Kalb, Ill.*
Hanaman, Wallace Winslow l s	*Madison*
Hanley, Edmund Charles	*Muskegon, Mich.*
Hannon, Leo John l s	*Sturgeon Bay*
Hansen, Alice Myrtle l s	*Neenah*
Hansen, Jenny	*Racine*
Hardy, Edith A.	*Sioux City, Ia.*
Hargitt, Robert Leslie	*Freeport, Ill.*
Harris, James William Jr. l s	*Winnetka, Ill.*
Harris, Mame	*Ft. Collins, Colo.*
Harrison, George Helen	*Logansport, Ind.*
Harrison, Mabel Ruth	*Logansport, Ind.*
Hart, Ray Jeffrey l s	*Madison*
Hartlieb, John George	*Pittsburgh, Pa.*
Hathaway, Alice Bartlett	*Grand Rapids, Mich.*
Hawley, Bessie Versalle l s	*Argyle*

Hawthorne, John Thomas	*Pittsburgh, Pa.*
Hayes, Frank Dennis	*Janesville*
Hayes, Marion Cleveland	*Shannon, Ill.*
Head, Catherine Esther 1 s	*Madison*
Head, Jerome Reed 1 s	*Madison*
Heald, Howard Leslie 1 s	*Oak Park, Ill.*
Heddles, Beula 1 s	*Madison*
Heimerl, Arthur William 1 s	*Madison*
Hektoen, Aikyn 1 s	*Chicago, Ill.*
Helland, Randolph Olaf	*Black Earth*
Helm, Ella F.	*Webb City, Mo.*
Henderson, Anne Livingstone 1 s	*Chicago, Ill.*
Henderson, Leland Forrest	*Madison*
Hendricks, Genevieve Estelle 1 s	*Madison*
Henkel, Albert John	*Pardeeville*
Herbert, Mary Kennerly 1 s	*Cincinnati, O.*
Herod, Len Barnes	*Erie, Kans.*
Herreid, Cecelia 1 s	*Madison*
Herzog, Bertram Peter	*Manitowoc*
Heuse, Clara	*Madison, Ind.*
Hewitt, Mary Anne 1 s	*Madison*
Hickman, John S.	*Madison*
Hicks, Clarence Raymond 1 s	*Madison*
Hilbert, Minnie	*Milwaukee*
Hill, Edith Anna	*Cincinnati, O.*
Hill, Lora Frances	*La Crosse*
Hill, Lydia Alice	*Lake Geneva*
Hill, Reba Eva	*Terre Haute, Ind.*
Hillberry, Maud E. 1 s, m	*Blue River*
Hillesheim, George Reinhard 1 s, m	*Madison*
Hilpertshauser, Blanche	*Sheboygan*
Hilton, Earl	*Chippewa Falls*
Hinckley, Marguerite Josetta	*Stevens Point*
Hirsch, Everett Charles	*Colby*
Ho, Ping Song 1 s	*Kinghwa, China*
Hoag, Frank Victor	*La Grange, Ill.*
Hodge, Edith E.	*Waunakee*
Hodges, Paul Chesley 1 s, m	*Ashland*
Hodshire, Stella Florence	*Kansas City, Mo.*
Hogan, Carl M.	*Ellendale, N. D.*
Hogan, Clark Harvey 1 s	*Oklahoma City, Okla.*
Holden, Mary E. 1 s	*Oshkosh*
Hollen, Stanley Edwin 1 s	*Eau Claire*
Hollister, Clarence Allan 1 s	*Racine*
Holm, Emma Jennie	*Chicago, Ill.*
Holmes, William Heberling 1 s	*Madison*
Holt, Fred J.	*Middleton*
Hompe, Marjorie	*Grand Rapids, Mich.*
Hopper, Ernest R.	*Oshkosh*
Horning, Bessie B.	*Logansport, Ind.*

Hotz, Henry Gustave g	*Scandinavia*
Householder, Frederick F. g	*La Farge*
Howard, Margaret l s	*St. Johns, Ore.*
Howlett, Irving Richard l s	*Oshkosh*
Hsu, Zun-Chan l s	*Madison*
Hsun, Swei l s	*Kiangsi, China*
Hubbell, Nina V.	*Sparta*
Hudson, Alice	*Wausau*
Hughes, Alice	*Noblesville, Ind.*
Hughes, Margaret Mary l s	*Madison*
Humphrey, Martha	*Wild Rose*
Hurlbutt, Charles Evan	*Oshkosh*
Husbands, Julia May	*Paducah, Ky.*
Ingrum, Mary Elizabeth	*Kansas City, Mo.*
Inman, Lawrence	*Roachdale, Ind.*
Irvine, Arthur	*Harding, Manitoba, Can.*
Irwin, Alta Eloise	*Normal, Ill.*
Irwin, Doris Elaine	*Normal, Ill.*
Jacobsen, Alta Theodora	*Oshkosh*
Jacobson, Alvin E.	*Muskegon, Mich.*
Jacobson, Edna Louise	*La Crosse*
James, Henry F. l s	*Hazel Green*
Jandl, Charles O. l s	*Racine*
Jay, Erskine La Verne l s	*Bloomington*
Jenkins, James Francis l s	*Berlin*
Jenney, Herbert Ralph	*Indianapolis, Ind.*
Jennings, Elsa G.	*Milwaukee*
John, Eva	*Gillett*
John, Walter A. l	*Milwaukee*
Johnson, Alvin Carlton	*Eau Claire*
Johnson, Charles William	*Norwood, O.*
Johnson, Donald P. l s	*Grand Rapids*
Johnson, Frederick Leslie	*Leamington, Canada*
Johnson, Henrich Walter	*Sansalito, Cal.*
Johnson, Lester D.	*Prophetstown, Ill.*
Johnson, Phoebe Louise	*Kirksville, Mo.*
Johnson, Robert Walter	*Humboldt, Ia.*
Johnstone, Edward Knox l s	*Keokuk, Ia.*
Jolivette, Edna Emma l s	*La Crosse*
Jones, Alexander F. l s	*Grand Rapids*
Jones, Bertha M.	*Oshkosh*
Jones, Frank Gordon	*Shawano*
Jones, Griffith S. l s, m	*Madison*
Jones, Ida Lucile l s	*Sparta*
Jones, Irving Willard	*Madison*
Jones, Maldwyn Lloyd l s	*Racine*
Jones, Winifred G.	*Greenich, Conn.*
Jordan, Emilia O.	*Chicago, Ill.*
Jungkind, Marie Louise	*Little Rock, Ark.*
Junkman, Glen Perry	*Independence*

Kahlow, Thomas Jefferson l s	*Escanaba, Mich.*
Kann, Matilda C.	*Chicago, Ill.*
Kasten, Carl Emily l s	*Milwaukee*
Kay, Leslie J.	*River Falls*
Keeler, Ray M. l s	*La Crosse*
Kehl, Dora Barbara	*Madison*
Keller, Frank John	*Mt. Airy, O.*
Kennedy, Alice Frances	*Hancock, Mich.*
Kennedy, James P.	*Pittsburg, Pa.*
Kennedy, Joana Lawrence	*Hancock, Mich.*
Kennington, Catherine	*Indianapolis, Ind.*
Kershner, Glenn R.	*Lancaster, O.*
Ketcham, Hazel Mae	*Grand Rapids, Mich.*
Kidder, Charles Joseph l s	*Madison*
Kilburn, H. Clay	*Racine*
Kilmoor, Ethel Marguerite	*Greenville*
King, Charles Ruthford	*Watertown*
King, Elizabeth Griswold	*Peoria, Ill.*
Kingdon, Jessie Margaret l s	*Brooklyn*
Kinne, Burdette Ingersoll l s	*Madison*
Klang, Oscar	*Fairchild*
Klein, Lillian	*Chicago, Ill.*
Knickerbocker, Harriet	*Elroy*
Knight, Temperance Winifred	*Mineral Point*
Knowlton, Helen Sheldon l s	*Madison*
Koch, Orville Cyrus l s	*Plymouth*
Kohn, Lawrence Albert	*New York, N. Y.*
Kolls, Alfred Conrad l s, m	*La Crosse*
Korshak, Sam	*Chicago, Ill.*
Kraus, Glenn Viering l s	*Marshfield*
Krause, Emil	*Superior*
Krause, Rosa Laura l s	*South Bend, Ind.*
Kremers, Lydia	*Whitehall*
Krippine, Harry	*Oshkosh*
Kronquist Emil Arthur	*Madison*
Kropf, Eldina	*Lancaster, Mo.*
Krueger, Arthur F. a	*Kenosha*
Kuehlhorn, Walter A.	*Milwaukee*
Kuethe, Fred M.	*Clinton, Ia.*
Kusama, Shiko Acer l s	*Madison*
La Budde, Frank	*Elkhart*
Laitem, Athenais	*Cleveland, O.*
Laitem, Francoise Rose	*Greencastle, Ind.*
Laitem, Helena l s	*Greencastle, Ind.*
Laitem, Louise	*Glencoe, Md.*
Lambe, Mary Louise	*Chicago, Ill.*
Lampert, Harold Milton	*Madison*
Lane, John Augustine l s	*Eagle*
Lang, Margaret Kathryn	*Chippewa Falls*
Langdon, Joseph James	*Richland Center*

Lange, Gladys Wilhelmina	*Eau Claire*
Larsen, Arthur William	*Milwaukee*
Larsen, Nellie May	*Lake Geneva*
Lassfolk, Esther 1 s	*Madison*
Lathrop, Ruth Madeline 1 s	*Madison*
Lay, Ung Chih 1 s	*Wuchang, China*
Lee, Edna J.	*Canton, S. D.*
Lee, Henry G. 1 s	*Madison*
Leeden, Hebe 1 s	*Kewanee, Ill.*
Legler, Fredric Mills 1 s	*Chicago, Ill.*
Lennon, Anal Elizabeth	*Hurley*
Lent, Margarete	*Washington, D. C.*
Lenz, Edwin R. 1 s	*Wausau*
Leonard, Margaret Belle	*Rockford, Ill.*
Leonard, Sylvia 1 s	*Hammond*
Leppert, Lillie Wells	*Columbus, Ind.*
Lewis, William Henry	*Madison*
Liang, Tu Hung	*Canton, China*
Lindegren, Alma Marie	*Superior*
Lindemann, Oscar Edward 1 s	*Milwaukee*
Lindholm, Oscar Bert	*Manitowoc*
Littlejohn, Elfreda	*Galveston, Tex.*
Lloyd, Ashley Bond 1 s	*Madison*
Lohman, Elma Henrietta	*Lafayette, Ind.*
Long, Bessie Sweet	*Frankfort, Ind.*
Long, Cecil Everette	*Frankfort, Ind.*
Long, Elsie Mabel	*Frankfort, Ind.*
Loos, Emma	*Milwaukee*
Lord, John Boardman a	*Washington, D. C.*
Lorenz, Leola Marie	*Madison*
Lorscheter, John Matthias	*Ashland*
Losey, Leslie Earl	*Clay Center, Kans.*
Loveland, Lena C.	*Wauwatosa*
Lovequest, George H. 1	*Racine*
Lowen, Maudell Bertha	*Three Lakes*
Lu, Shon Wen 1 s	*Foochow, China*
Lueckenbach, Edward J.	*Marshfield*
Lund, Iva Elizabeth	*Chicago, Ill.*
Lyle, George Margaret 1 s	*Madison*
Lyman, Helen C.	*Madison*
Lynch, Anna May	*Washington, D. C.*
Lynch, Lucy Greene	*Washington, D. C.*
Lyon, Elmer W.	*Portage*
McAleavey, Francis L.	*Oconomowoc*
McClain, Helen Juanita	*Terre Haute, Ind.*
McClanahan, George Palmer 1 s	*Madison*
McClintock, Wayne B.	*Marquette, Mich.*
McClure, Ida Lee	*Cox's Creek, Ky.*
McComas, Margaret Loyola	*Covington, Ind.*

McComb, Harvey Godfrey	*Corvallis, Ore.*
McCool, George Ellery	*Pittsburg, Pa.*
McCormick, John Vincent l s, l	*Madison*
McCoy, Leslie Layton	*Pittsville*
McCullough, Grace	*Manitowoc*
McDermott, Joseph T.	*Pittsburgh, Pa.*
McDougal, Jennie Myrtle	*Sapulpa, Okla.*
McDougal, Mary Carmack	*Sapulpa, Okla.*
MacDougall, Eva Florence l s	*Whitewater*
McEachron, Fred	*Racine*
McFadden, Doris Lucille l s	*Madison*
McGarry, Grace Margaret l s	*Walworth*
McGillivray, Joseph Emmett a	*Chippewa Falls*
McGilvary, Margaret Cornelia l s	*Madison*
McGinley, Earl Edward l s	*Madison*
McHenry, Avis	*Milwaukee*
McKinley, Harriet Belle	*Saint Ansgar, Ia.*
McLane, Ethel Irene	*Shelbyville, Ind.*
McLaughlin, Will Allen	*Trempealeau*
McMahon, Rolla James	*Maiden Rock*
McMeen, Josephine E.	*Chicago, Ill.*
McMillan, Elizabeth	*Kansas City, Mo.*
McMillan, Helen	*Kansas City, Mo.*
McNulty, Sadie A.	*Spring Green*
Ma, Minghai ls	*Chili, China*
Mach, Edward ls	*Kewaunee*
Maddock, Frances M.	*Oak Park, Ill.*
Magee, Katharine M.	*Chicago, Ill.*
Maginis, Alice	*Indianapolis, Ind.*
Mailer, Katharine Margaret ls	*De Pere*
Mallien, Frank James	*Brussels*
Mandeville, Mabelle	*Chicago, Ill.*
Manion, Frances Mary	*Chicago, Ill.*
Mann, William F.	*Muskegon, Mich.*
Marcellus, Jean	*Toledo, Ill.*
Marek, Frank Ben	*Madison*
Marshall, Lydia Ann	*La Farge*
Marshall, William Hughes	*Madison*
Martin, Ada North ls	*Lodi*
Martin, Cora C.	*Kansas City, Mo.*
Martin, Frank Richard	*Coldwater, Mo.*
Martin, George Carlyle ls	*Duluth, Minn.*
Martindill, Joseph W.	*Madison*
Martins, Romen Esteves e	*Santos, Brazil*
Martner, Caroline Louise	*Prairie du Chien*
Martner, Ida	*Prairie du Chien*
Matthews, Annie Laura	*St. Louis, Mo.*
Matthews, Maude Eunice	*Milwaukee*
Matthews, Mayme	*Bedford, Ind.*
Mattice, Paul Edward	*Footville*

Mayer, Edna	*Milwaukee*
Mayer, William Botho	*Chicago, Ill.*
Mayhew, Corabelle	*Billings, Mont.*
Meehan, Agnes E.	*Covington, Ind.*
Meek, Hazel Dell	*Chicago, Ill.*
Mehlig, Lee Percy ls	*Madison*
Meiskothen, Hildegarde Mary	*Madison*
Mendelsohn, Isador William	*Washington, D. C.*
Messeehiser, Amiele R.	*Sun Prairie*
Meuer, Alma H. ls	*Madison*
Meyer, Clarence H.	*Chicago, Ill.*
Meyer, Herman Charles ls, m	*Oshkosh*
Midgard, Judith May	*Stoughton*
Miles, Emmett Herman	*Waupaca*
Miles, Helen Kathryn	*Milwaukee*
Miles, Jacob Earl	*Louisville, Ky.*
Miles, Worel C.	*Monticello*
Miller, John Fletcher	*Warrensburg, Mo.*
Mitchell, Helen Elizabeth ls	*Argyle*
Mitchell. Prescott Talman a	*Cincinnati, O.*
Mitra, Khagendranarayan, ls	*Malda, Bengal, India*
Moe, Mayme A. Conway	*Elroy*
Mohr, Edna ls	*Milwaukee*
Monahan, Homer Waddington	*Darlington*
Montgomery, Ray	*Bryan, Texas*
Moore, Cornelia Sibyl	*Logansport, Ind.*
Moorman, Leon Heartly	*Musekgon, Mich.*
Morehart, Malcolm Butler	*Madison*
Moring, Nathanial J.	*Forreston, Ill.*
Morley, Inez	*Madison*
Morris, Thomas William l s	*Guthrie, Okla.*
Morrissy, Mame	*Elkhorn*
Morrow, Louise	*Altamont, Kans.*
Mossey, Celia Mae	*Bangor*
Motoyama, Tokuzoh, ls	*Satsuma, Japan*
Muck, Carl Seiforth	*Jefferson*
Muellenbach, Martha Lee	*Chicago, Ill.*
Mueller, Louis Elmer l s	*Milwaukee*
Muench, Joseph Frederick	*Mountain Iron, Minn.*
Mulder, Mary	*New Amsterdam*
Mullane, Alice H.	*Louisville, Ky.*
Mummert, Maurice Merrill	*Goshen, Ind.*
Munson, Edward Elias	*Seneca*
Murduck, Elizabeth Adams	*Champaign, Ill.*
Murphy, Henry R. ls	*Beaver Dam*
Murphy, Walter Henry	*Elkhorn*
Murray, Margaret Blanche	*Champaign, Ill.*
Myhre, Neena Rebecca l s	*Fairchild*
Nagle, Leonora C.	*St. Louis, Mo.*
Narr, Edward Richard l s	*Milwaukee*

Neeb, Lewis Spelger	*Cincinnati, O.*
Nelson, Benjamin Louis l s	*La Crosse*
Nelson, Carolyn Guriena l s	*Reville, S. D.*
Nelson, Lilian Margaret	*Bessmer, Mich.*
Neubecker, Anna E.	*Niagara Falls, N. Y.*
Newman, Beth Alice	*Mobile, Ala.*
Newman, Elsie Elizabeth L. l s	*Madison*
Nind, Marjorie Elizabeth l s	*Grand Rapids, Mich.*
Norris, John Emanuel	*Racine*
Norton, Halbert Eli l s	*Poynette*
Oakley, Mary	*Seattle, Wash.*
Oates, Arthur R.	*Darlington*
Obata, Shigeyoshi l s	*Osuka, Japan*
O'Connor, John Peoslee	*Superior*
Oesterle, Joseph Francis	*Madison*
Oestreich, Louis John l s	*Janesville*
O'Hora, Bernard Anthony ls, m	*Madison*
Olsen, Elaine Mabel	*Elgin, Ill.*
Olsen, Marshall Raymond l s	*Rice Lake*
Olson, Julia A.	*Melvina*
Orr, Ella Miller	*Columbus, Ind.*
Osborne, John S. l	*Madison*
O'Shea Harriet Eastabrooks, l s	*Madison*
Oskamp, Alexander McLeod	*Wyoming, Ohio*
Oskamp, Alfred Stuart l s	*Wyoming, Ohio*
Owen, Gertrude	*Madison*
Owen, Gordon	*Madison*
Owen, Jay C. l s	*Plainfield*
Pagar, Shankar Madhav l s	*Baroda, India*
Parent, William	*Florence*
Park, Lyman B. l s	*Stevens Point*
Parker, Emily	*Decatur, Ill.*
Parson, Eleanor Dana	*Groton, Mass.*
Parson, Robert l s, m	*Chicago, Ill.*
Paulu, Emanuel Marion	*Madison*
Pearson, Calvin Clayton	*Ainsworth, Ia.*
Pearson, Cecil Philip l s	*London, England*
Pelton, Glenn Edwin l s	*Oshkosh*
Perry, Herbert Storrs	*Humbird*
Peterson, Henrietta	*Ishpeming, Mich.*
Peterson, Margaret D.	*Eau Claire*
Pettijohn, John J.	*Madison*
Peyton, Mary Lou	*Columbus, Miss.*
Pfeiffer, Charles Albert l s	*Franklin*
Phillips, Burr Wendell	*Fond du Lac*
Phillips, Hazel M. l s	*Madison*
Pickering, Hayden M. l s	*Superior*
Pickett, Anna	*Toledo, O.*
Pierce, Maurice Campbell	*Madison*
Pike, Minnie Esther	*Sauk Center, Minn.*

Pitt, Grace	*Indianapolis, Ind.*
Pitts, Joseph Samuel	*River Falls*
Plant, John	*Trenton, N. J.*
Plunkett, William Joseph	*Chicago, Ill.*
Poindexter, Harry Kellar	*Kansas City, Mo.*
Porter, Claude Tillinghast l s	*Dwight, Ill.*
Post, Eveline Margaret l s	*Edgerton*
Potter, Earl G.	*Detroit, Mich.*
Powell, Elias	*Madison*
Powell, Frank Vavasar l s	*Pleasant Prairie*
Pray, Carrie L.	*Indianapolis, Ind.*
Priester, Henry Carl l s	*Davenport, Ia.*
Prince, Harriet Sarah	*Downers Grove, Ill.*
Prince, Minnie H.	*Downers Grove, Ill.*
Purdy, Cora Adelia	*Bowling Green, O.*
Quale, Norman M. l s, l	*Madison*
Quentmeyer, Philip C.	*Watertown*
Quigley, Marguerite Isabel	*Williamsport, Pa.*
Rakshit, Hemendra Kisor l s	*Dacca, Bengal, India*
Randall, Otis Laurence l s	*Oak Park, Ill.*
Randolph, Mabel	*University, N. D.*
Rannenberg, George C. l s	*Chicago, Ill.*
Rath, Floyd Cecil l s, m	*Sparta*
Rawson, Adelaide l s	*Eau Claire*
Ray, Robert G. l s	*La Crosse*
Raymour, Leonard L.	*Baraboo*
Reed, Clara Mabel	*Champaign, Ill.*
Reed, Helen Morse a	*Necedah*
Reed, Katherine F.	*Pittsburgh, Pa.*
Reeves, Irving Emery	*Kansas City, Mo.*
Reid, D. Logan l s	*Waunakee*
Reif, Eugene	*Santa Ana, Cal.*
Reifert, Anna Henrietta	*Cincinnati, O.*
Reinholdt, Richard Theodora	*Madison*
Reiser, Elizabeth E. l s	*Madison*
Reitz, Carrie Jean l s	*Chicago, Ill.*
Renz, Emilie Marie	*Milwaukee*
Reuter, Hilda	*Milwaukee*
Reynolds, Carolyn S.	*Toledo, O.*
Reynolds, Edward Daniel	*Madison*
Richards, Florence Ada	*Terre Haute, Ind.*
Richardson, Helen	*Evansville*
Richardson, Lemont Hunter ls l	*Sheboygan Falls*
Riess, Frank C.	*Jefferson*
Riggert, Elda K. l s	*Reedsburg*
Ringling, Hester M.	*Baraboo*
Ritter, George J.	*Wausaukee*
Roach, Jane Vaughan	*Madison*
Roache, Mary C.	*Toledo, O.*
Roberts, A. Eleanor	*Hart, Mich.*

Roberts, Helen Adeline	*Superior*
Roberts, Jessie L. l s	*Superior*
Robinson, Byron Lewis l s, m	*Oconomowoc*
Robinson, Carl Lewis	*La Crosse*
Robinson, Ellis N.	*Richland Center*
Robson, John Matthew	*Madison*
Roecker, William Frederick g	*Madison*
Rogers, William Albro	*Madison*
Rohn, Franklyn Albert l s	*Milwaukee*
Rohr, James Earl	*Montfort*
Roos, Christopher	*Madison*
Rosenberg, Louis l s	*Milwaukee*
Rosenthal, Alma	*Grand Rapids, Mich.*
Ross, Amanda Ida l s	*Milwaukee*
Ross, Anne Henriette Elizabeth l s	*Milwaukee*
Ross, William Ernest l s	*Madison*
Rothwell, Paul Taylor l s	*Needham, Mass.*
Rubado, Clarence	*Dodgeville*
Rubin, Charles l s	*Milwaukee*
Rudow, Anna Adelaide	*River Falls*
Rumsey, Leslie Alonzo	*Central Valley, N. Y.*
Ruschhaupt, Anna	*Milwaukee*
Rutledge, Jessie H. l s	*Sparta*
Ryan, Genevieve Ingersoll	*Janesville*
Ryser, Lyda Marie l s	*Appleton*
Sadler, Omar T.	*Helena, Mont.*
Saleski, Felicitas Anna l s	*Meriden, Conn.*
Salter, Jessie Dove	*Chilton*
Sanborn, Philip Golder l s	*Madison*
Sanders, Alice Marie	*Marshall*
Sanders, Reginald E.	*Eureka*
Sands, Albert Theodore l s	*Chippewa Falls*
Sanza, Jacy Golentino d e	*Santos, Brazil*
Sarazin, Katherine	*Superior*
Saunders, Betty	*Evansville, Ind.*
Schaub, Carl Frederick	*Marion*
Scheerer, Elsa C.	*Chicago, Ill.*
Schenk, Kurt	*St. Louis, Mo.*
Schenk, Margarete	*Milwaukee*
Scherff, Anna Lenore	*Toledo, O.*
Schimel, Charles Frank l s	*Tisch Mills*
Schlomovitz, Benjamin Herman ls m	*Milwaukee*
Schmeuhel, Ewald J.	*Two Rivers*
Schmidt, Emma Augusta l s	*Milwaukee*
Schmoke, George Walter	*Winona, Minn.*
Schoeffel, Raymond Louis	*Evanston, Ill.*
Schoewe, Walter Henry l s	*Milwaukee*
Schubert, Martha	*Sheboygan*
Schulte, Isidore John l s	*Milwaukee*
Schulte, Peter	*Norway, Ia.*

Schultz, Harry George l s	*Milwaukee*
Schulz, Anna M.	*Richmond, Ind.*
Schulze, Dorothy	*Monroe, La.*
Schwartz, Benjamin	*Waukegan, Ill.*
Schwarz, Mary Harrington	*Kirksville, Mo.*
Schwebke, Annie Frieda	*Milwaukee*
Scott, Allison Fendall Hannay e	*Washington, D. C.*
Scott, Walter Alexander	*Augusta*
Seelye, Seth H. e	*Madison*
Segerstrom, William	*River Falls*
Sell, Lucile Iva	*Reeseville*
Severance, Clare	*Madison*
Seward, Bertha Hedwig	*Beaver Dam*
Shaw, Cora B.	*Louisville, Ky.*
Shawver, Sophia	*Kincaid, Kans.*
Shearer, Harry Arthur l s	*Fennimore*
Sheets, Grace	*Columbus, O.*
Sheets, Marjorie Naomi l s	*Columbus, O.*
Sheppard, Virginia	*Houston, Tex.*
Short, Fred	*River Falls*
Shrawder, William H.	*Pittsburgh, Pa.*
Shryock, Helen	*St. Louis, Mo.*
Siemers, Arthur William	*Madison*
Simmons, Lynn A. l s	*Corliss*
Simmons, William Francis	*Madison*
Sister M. Gertrude	*Sinsinawa*
Sister Marie Lillian Kurtenacker	*Sinsinawa*
Sister M. Virginia	*Sinsinawa*
Skemp, Archie A. l s, m	*La Crosse*
Skinner, Rachel L. l s	*Madison*
Slaby, Frank J. a	*Algoma*
Sliwinski, Albert Adolph g	*Oconomowoc*
Smiley, Paul H.	*Altamont, Kans.*
Smith, Daniel Du Pre l s	*Madison*
Smith, Edwin Oscar	*Suiter, O.*
Smith, Homer John	*Rewey*
Smith, Martha Persis	*Kansas City, Mo.*
Smith, Pearl Maby l s	*Madison*
Snively, Edward Taylor	*Fort Dodge, Ia.*
Snyder, Irma	*Indianapolis, Ind.*
Snyder, James Arthur	*Cincinnati, O.*
Speerstra, Ruth	*Whitehall*
Spencer, Lorraine Culver	*Appleton*
Spero, Samuel	*Milwaukee*
Spooner, Truman Rhodes	*Whitewater*
Sporleder, Willard Moorehouse l s	*Wauwatosa*
Springer, May B.	*Shelbyville, Ind.*
Sproesser, Adelaide	*Milwaukee*
Standish, Chester Kingman l s	*Madison*
Statz, Alma Elizabeth l	*Madison*

Steele, Pierre Abel	*Springfield Ill.*
Stege, Lilian Elizabeth	*Louisville, Ky.*
Steinman, Henry John, Jr.	*Pewaukee Lake*
Stephani, Florence l s	*Madison*
Sterling, C. Carl	*Toledo, O.*
Steeuer, Joseph True l s	*Chicago, Ill.*
Steve, Fannie	*Madison*
Stevens, Margaret	*St. Louis, Mo.*
Stevens, Thomas Wood	*Madison*
Stewart, John James l	*Marinette*
Stocking, Milan Hausch	*Madison*
Stoltz, Oscar William l s	*Ottumwa, Ia.*
Stone, Ralph William l s	*Madison*
Strachan, Bertha A.	*Chicago, Ill.*
Stracke, Marie	*St. Louis, Mo.*
Strong, Albert J.	*Waterloo, Ia.*
Sturtevant, Harwood	*Delavan*
Sullivan, Margaret l s	*Madison*
Sumner, Jessie Walthew l s	*Madison*
Sweet, Marvin Stone	*Ft. Worth, Texas*
Swenson, Helen Katrina	*Madison*
Tang, Man Hsi l s	*Haverford, Pa.*
Tate, Mary Evangeline	*Lawrence, Kans.*
Taurman, Eva	*Bloomfield, Ky.*
Taylor, Clifford Chaffee	*Columbus, Ind.*
Tazewell, Edna May	*DeKalb, Ill.*
Thayer, Nathaniel	*Evanston, Ill.*
Thoma, Valeria l s	*Madison*
Thomas, Edward John l s	*River Falls*
Thompson, Blair	*Chicago, Ill.*
Thoreson, Herman William l s	*Grantsburg*
Thull, Margaret Cecelia	*Marinette*
Thurber, Theodora	*Holland, Mich.*
Tilden, Chloe Elizabeth l s	*Wausau*
Timberlake, Ruth Salsbury	*St. Louis, Mo.*
Tisch, Minnie Thesesa	*Milwaukee*
Todtmann, Ella Mary	*Chicago, Ill.*
Toerne, Emma von l s	*Ft. Atkinson*
Tormey, Albert Robert l s, m	*Madison*
Traeger, Ernst	*Milwaukee*
Trilling, Blanche M. l s	*Madison*
Trottman, Nelson Smith l s	*Milwaukee*
Tulasker, Krishnakai	*Milwaukee*
Tuthill, Maud Elizabeth	*Elgin, Ill.*
Twetten, Jennie Olena	*Milltown*
Twomey, Thomas Lee l s	*Madison*
Ulrich, John Henry	*Harrisburg, Pa.*
Upham, Arthur Aquita	*Whitewater*
Uren, Alan l s	*Jonesdale*
Vail, Ruth Elizabeth	*Geneseo, Ill.*

Vander Velde, Tena Evelyn	*Grand Rapids, Mich.*
Van Ostrand, A. Mortimer l s	*Antigo*
Van Riper, George Prather	*St. Louis, Mo.*
Varian, Marian Katheryn	*Wilmette, Ill.*
Voegtle, Amelia	*Louisville, Ky.*
Vollmer, Fanny Rosalie	*Milwaukee*
Voss Edward Fritz l s	*Davenport, Ia.*
Vye, Gladys E.	*Madison*
Waddell, John Frank	*Evansville*
Waite, Fanny M.	*Rockton, Ill.*
Walker, R. Arlo	*Kankakee, Ill.*
Wall, William Francis	*Highland*
Ware, Maynie	*Huntington, W. Va.*
Warnberg, Ruth	*Ishpeming, Mich.*
Warner, Rollin Aldrich l s	*Sturgeon Bay*
Warren, Olive M.	*Spearfish, S. D.*
Waste, Florence C. l s	*Antigo*
Webster, Marguerite L.	*Independence, Ia.*
Wedlock, Elmer Leroy	*Mineral Point*
Weller, Stevens	*Milwaukee*
Wells, Leland Allison l s	*De Pere*
Welsh, Claude G.	*Decatur, Ill.*
Werner, Raymond Clarence l s	*Milwaukee*
Wertheim, Fred E. l	*Madison*
Wheatley, William Forsythe	*Greenville, Miss.*
Wheeler, Gladys Evelyn l s	*Wauwatosa*
Whelan, Allen	*Mondovi*
Whelan, Miller l s	*Mondovi*
Whiffen, Clarence Fred l s	*Madison*
Whipple, Marthena	*Waterloo*
Whisler, Ivan Vascy	*Platteville*
Whitcomb, Harry Francis	*Abrams*
White, Addie M. l s	*Madison*
White, Eldora Amelia	*Clinton, Ia.*
Whitmore, Frank White	*St. Paul, Minn.*
Whitney, May	*Madison*
Wieben, Fred H. e	*Milwaukee*
Wildeman, George H. l s	*Madison*
Wilhelmi, Ilsa	*Lawrence, Kans.*
Wilhelmi, Irma	*Lawrence, Kans.*
Wilhite, Hubert Theodore	*Kokomo, Ind.*
Wilkins, Robert Alexander	*Polytechnic, Tex.*
Williams, Beth Elinor l s	*Genoa Junction*
Williams, Bryant W.	*Madison*
Williams, Maryhelen	*Cincinnati, O.*
Williams, May J.	*Milwaukee*
Williams, Ruth l s	*Boscobel*
Willis, Clinton Catherine	*Muscatine, Ia.*
Wilmunder, Herman Reinoehl	*Philadelphia, Pa.*
Wilson, Mabel Marian	*Pontiac, Ill.*

Wilson, Thomas Leslie l s	*Madison*	
Winans, Mayme	*Columbus, Ind.*	
Wing, Orion	*Capron, Ill.*	
Winn, Henry Newton ls, m	*Poynette*	
Winslow, Joseph C. l s	*Omro*	
Wolcott, Clara Louise	*Manchester, Ia.*	
Wolcott, Roger Gilbert l s	*Rockford, Ill.*	
Wolf, Charles Peter l s	*Random Lake*	
Wong, John l s	*Peking, China*	
Woo, Wai-Kyi	*Shanghai, China*	
Wood, Frederick	*Zionville, Ind.*	
Wooll, Jessie Virginia	*Hillsboro, Ill.*	
Wortham, Eben Alexander	*Greenville, Miss.*	
Wright, Clark Gage	*Lombard, Ill.*	
Yabe, Masao	*Toykyo, Japan*	
York, Pansy Celia l s	*Superior*	
Zanig, Augustus Delafield	*New York, N. Y.*	
Zinke, Arno Louis	*Fond du Lac*	—964

MUSIC

Bickford, Nelle H.	*Superior*	
Gysbers, Bessie Elizabeth mu	*Brandon*	
Hatleberg, Jorona Isabel	*De Forest*	
Kuhlig, Julia A.	*Milwaukee*	
Latham, Ella Owen mu	*Washington, D. C.*	
Levitan, Esther mu	*Madison*	
Littlejohn, Liska Cullens	*Galveston, Texas*	
O'Neil, Blanche Louise	*Leavenworth, Kans.*	
Radcliffe, Grace Elizabeth	*Eagle River*	
Richards, John Stanley mu	*Madison*	
Schnackenberg, Pearl Ada	*Madison*	
Smith, Edith Seymour	*Columbus, O.*	
Watzke, Zelma Alberta mu	*Madison*	
White, Vila Elizabeth mu	*Madison*	—14

ENGINEERS

GRADUATES

Anderson, Russell Arnold e Ph. B., Hamlin University	*Grantsburg*
Bailey, Otterbein Andrew e B. S., Otterbein University	*Westerville, O.*
Bjorkland, Alfred B. S., Drake University	*Alta, Ia.*
Brown, Frank Logan B. S., University of Colorado	*St. Joseph, Mo.*
Butler, Walter Glynn B. A., Ripon College	*Montello*
Gillilan, Charles S. B. S., Ohio Wesleyan University	*Vanatta, O.*

Gilman, E. Dow g — *Madison*
B. S., University of Wisconsin
Greenwood, Donald Whittier e — *Madison*
B. A., Dartmouth
Herrington, John Anderson — *College Sta., Texas*
B. S., Agricultural & Mechanical College
Kirby, Richard Shelton — *Gettysburg, Pa.*
C. E., Yale University
Lendall, Harry Nelson — *New Brunswick, N. J.*
D. S., Tufts College
Merriman, Eugene Duette — *Madison*
Ph. M., Chicago University
Phinney, Sedley H. e — *Rochester, N. Y.*
B. S., University of Rochester
Reagan, Chester L. — *Carmel, Ind.*
B. S., Earlham College
Roadifer, Ada Elizabeth — *Chicago, Ill.*
B. S., University of Chicago
Roads, Samuel Hardin g — *Madison*
B. S., Ohio Wesleyan
Schenk, Otto, — *Chicago, Ill.*
M. S., University of Michigan
Weaver, Hal C. — *Austin, Tex.*
E. E., University of Texas
Woods, Harland C. — *Omaha, Neb.*
B. S., University of Nebraska

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UNDERGRADUATES

Adlington, Earl Raymond e e — *Viroqua*
Almon, Grover Cleveland e — *Weyauwega*
Anderson, Bert E. e — *Madison*
Andrae, George Henry Joseph e — *Milwaukee*
Arpin, Edmund Philip e — *Grand Rapids*
Baird, Paul Edward — *River Falls*
Ban, Seizo — *Tokyo, Japan*
Barnum, Edmund — *La Grange, Ill.*
Beaton, Matthew A. Jr. — *Chicago, Ill.*
Bennett, Thomas Edmund e — *London, England*
Benz, T. Frederick — *Beloit*
Bickel, Ferdinand De Witt e — *Beloit*
Biggam, Earl — *Saginaw, Mich.*
Bloecher, Walter Philip e — *Madison*
Blomeyer, Harris Pheifer e — *Chattanooga, Tenn.*
Brandel, Wallace Lester e — *Milwaukee*
Breckenridge, William L. e — *Chicago, Ill.*
Broadbent, Earl Robert — *Chicago, Ill.*
Bullis, Harry Amos e — *Madison*
Butz, Charles Harold e — *Mazomanie*
Caradine, Harold Benson ls — *Monroe*

Carey, Russell Conwell	*Pittsfield, Ill.*
Carus, Gustave Kruger	*La Salle, Ill.*
Case, Archibald Williston e	*Havana, Cuba*
Colbeck, Frederick William e	*Superior*
Collentine, Ralph Joseph e	*Monroe*
Connit, Fred L. e	*Milwaukee*
Connolly, George H. e	*Racine*
Cooper, Fenimore e	*Milwaukee*
Cornish, Myron e	*Oak Park, Ill.*
Crump, Arthur Wilson e	*Lake Mills*
Daley, Carl Harry	*Superior*
Dargan, William Venuste e	*Columbus*
Davy, George e	*Madison*
Dickson, Hunter A. e	*Chicago, Ill.*
Drew, Howard S. e	*Chicago, Ill.*
Drew, Robert S. g	*Chicago, Ill.*
Eastman, Charles Leslie	*Milwaukee*
Edwards, Harold S.	*Des Moines, Ia.*
Emerson, Ernest e	*Pewaukee*
Epstein, William Carl	*Madison*
Erickson, Kenneth William e	*Racine*
Erickson, Peter Erick	*New London, Minn.*
Evenchick, Max e	*Newark, N. J.*
Fahey, Deely Bernard e	*Guthrie, Okla.*
Fisher, Glenn Bailey e	*Janesville*
Fisher, Herbert Charles	*Beaver Dam*
Foulkes, Thomas Robert e	*Merrimack*
Fowler, Dwight S. e	*Fond du Lac*
Gettelman, William Fredrick e	*Escanaba, Mich.*
Giryotas, Walter Joseph e	*Madison*
Gollmar, Herbert Arthur e	*Baraboo*
Goss, William Azell e	*Milwaukee*
Grambsch, Rivold Herman e	*Madison*
Grenfell, Donald Stuart e	*Madison*
Griem, Harvey e	*New Holstein*
Grimmer, Edwin Wolsey e	*St. Louis, Mo.*
Hale, Merle C.	*Omro*
Halladay, Franklin Stanley	*Plover, Wis.*
Hallock, Neil Carey e	*Taylorville, Ill.*
Hansen, Ross Peter	*Greenwood*
Harris, James Waldo	*Madison*
Harris, Percy F.	*Kansas City, Kans.*
Head, Clarence Eugene	*Kenosha*
Heins, William Hugo e	*Wittenberg*
Henny, David e	*Portland, Ore.*
Higgin, Eugene Colin	*Marshalltown, Ia.*
Higley, Harvey Van Zandt e	*Glen Ellyn, Ill.*
Hodson, Fred W.	*Chicago, Ill.*
Hout, Gus Jay	*Kansas City, Mo.*
Hughes, Delmar R.	*Dayton, O.*

Innes, William Wallace e	*Cincinnati, O.*
Jacobus, John A.	*Deerbrook*
Johnkowsky, Nikifor	*Port Huron, Mich.*
Johnson, Godfrey e	*Superior*
Jones, Richard H. e	*Janesville*
Kaguta, Tomoda	*Osaka, Japan*
Kamantigue, Gonzales Manela e	*Imus, Cavite, P. I.*
Kaumheimer, Edwin Andrew e	*Milwaukee*
Kleck, Carl F.	*Milwaukee*
Kline, Matt J. e	*So. Kaukauna*
Koch, Herman John	*Milwaukee*
Kolseth, Hilmer	*Chicago, Ill.*
Koo, Vi Tsing	*Kiangsu, China*
Lampert, Benjamin H.	*Oshkosh*
Lang, Hiram A. e	*Chippewa Falls*
Larson, Wesley R.	*Colfax*
Laue, Gilbert E. e	*Milwaukee*
Little, Clarence Barton e	*Madison*
Little, John Shirley	*Burlington, Ia.*
Loeb, Louis Sigmund e	*Apartado, Mex.*
Ludden, Fredrick Vivian e	*Mineral Point*
Lund, Carl Howard e	*Racine*
McAteer, James Robert e	*Oconomowoc*
McLean, James Calvin	*Waukesha*
Mack, William Davis ls	*Madison*
Marsh, William Ernst e	*Grand Junction, Colo.*
Marshall, Harry Alexander e	*East Troy*
Maurer, Claude N. e	*La Crosse*
Maxon, Glenway, Jr. e	*Milwaukee*
Mendonca, Olyntho ls	*Manaos, Brazil*
Miller, Clyde Albert	*Sunbury, Pa.*
Miller, William F. e	*Madison*
Montgomery, Inez V.	*Weaver, Minn.*
Morrell, Robert Kenneth e	*Superior*
Morris, Leslie Roslyn e	*Madison*
Nance, Allen Ellsworth e	*Monroe*
Nee, Patrick J. e	*Superior*
Nordmeyer, Carl Louis e	*St Louis, Mo.*
O'Connor, Arthur James e	*Milwaukee*
Ofstie, Harold Sigvold e	*Eau Claire*
Olson, Carl	*Rhinelander*
Pardee, Franklin Gray e	*Wausau*
Parsons, Jay Hamilton	*Winona, Minn.*
Pascoe, Harry	*Winnepeg, Manitoba*
Popelka, Charles Jerry e	*Racine*
Potter, Edward Palmer e	*Milwaukee*
Powell, Archie Eisenhower e	*Lake Wilson, Minn.*
Proetz, Bernard George	*St. Louis, Mo.*
Purchas, Robert Thorson e	*Milwaukee*
Rappleys, Warren Clayton	*Goodman*

Raube, William C. e	*Waupun*
Reed, Melbourne, O. e	*Darien*
Reyes, Teofilo O. e	*Bocaue Bulacan, P. I.*
Rietz, Charles Ernst	*Marinette*
Ritter, Louis e	*Evanston, Ill.*
Rogers, Lester Cushing e	*Oak Park, Ill.*
Rusch, Herbert William e	*Portage*
Rynerson, Elmer	*Franklin, Ind.*
Salmon, Wallis Samuel e	*Mineral Point*
Sandberg, Henry Theodore	*Madison*
Schroeder, Alfred George	*Schofield*
Shu, Seng Jah	*Kwei yan, China*
Shurtleff, Ernest S.	*Madison*
Simonds, Marshall Garfield ls	*Chicago, Ill.*
Sjoblom, C. Maurice	*Grantsburg*
Smith, Donald S. e	*Elroy*
Squier, Leon Walter	*Rockford, Ill.*
Standish, Miles E. e	*Milwaukee*
Steers, Leland S.	*Markesan*
Steinbrenner, Harlow Pierre e	*Chicago, Ill.*
Stephenson, Winchell R.	*Paoli, Ind.*
Stimson, Paul Reve e	*Appleton*
Stoesser, Leo Paul	*Chicago, Ill.*
Stuart, Charles Whitman e	*Monroe*
Tanghe, Edward Franklyn e	*Milwaukee*
Tashjian, Edward Hagop e	*Cleveland, O.*
Taussig, Warren Allen e	*Kirkwood, Mo.*
Taylor, Archibald Roger e	*Barron*
Thomas, Edward F. e	*Pewaukee*
Tolhurst, William H. e	*Madison*
Trantin, Jacob, Jr. e	*Madison*
Trevorrow, William John	*Los Angeles, Cal*
Vallette, Vincent Jewell e	*Goshen, Ind.*
Wahl, Arnold Spencer	*Madison*
Walden, George Ballard	*Franklin, Ind.*
Weaver, Warren e	*Madison*
Wells, Fred Sheaff	*Aurora, Ill.*
Wendt, Carl A. e	*Waterloo*
Wesle, Herbert W. e	*Medford*
Widman, Orni	*St. Louis, Mo.*
Wilson, Albert Vincent	*Madison*
Wilterding, Forest Eugene e	*Wausau*
Winterbotham, Ralph William e	*Madison*
Young, John Ward e	*La Crosse*
Youngberg, George Edward e	*La Crosse*
Zapata, Lino	*Mexico City, Mex.*

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AGRICULTURE

GRADUATES

Anderson, Myron Sallee — *Indianola, Ia.*
B. A., Simpson College
Ayers, Ellsworth Dunham a — *Albion*
B. A., Milton College
Baird, Robert Dixson — *Evanston, Ill.*
B. S., University of Wisconsin
Bewick, Thomas Lyman g — *Madison*
Ph. B., University of Wisconsin
Birge, Julius Stanley g — *Madison*
M. A., Colorado College
Bledsoe, Page R. — *Texington, Va.*
B. A., Washington and Lee University
Briggs, Theodora — *Madison*
B. S., University of Wisconsin
Broyles, William Anderson — *Park River, N. D.*
B. A., University of Indiana
Burg, Allen George g — *Madison*
B. A., Ripon College
Byars, Luther Parris — *Marion, S. C.*
M. S., University of Wisconsin
Campbell, Sarah Maria — *Chicago, Ill.*
B. A., University of Chicago
Carpenter, Ira W. — *Brooklyn, Miss.*
B. S., Mississippi Agricultural and Mechanical College
Carpenter, Mrs. Ira W. — *Brooklyn, Miss.*
B. A., Blue Mountain College
Cauffield, Arthur John g — *Tyrrell, O.*
B. S., University of Chicago
Chatterjee, Brahma Nath — *Allahahad, India*
B. S., University of Illinois
Cole, Adrian H. — *Merrill*
Ph. B., University of Wisconsin
Daane, Adrian N. g — *Madison*
Ph. B., University of Wisconsin
Davis, Charles Louis — *Denton, Tex.*
B. S., University of Tennessee
Dodge, Helen Jospehine — *Monroe*
B. S., University of Wisconsin
Doherty, Everett H. — *Fairmount, Indiana*
B. S., Earlham College
Drechsler, Charles Frank g — *Butternut*
B. S., University of Wisconsin
Edson, Howard Austin — *Madison*
M. S., University of Vermont
Evans, Samuel Ernest — *New Zion, S. C.*
B. S., Clemson Agricultural College

Foote, Frank McDonald g — *Lodi*
B. A., Lawrence College
Foster, Leighton George — *Oregon*
B. A., Lawrence College
Fulmer, Henry — *Batesburg, S. C.*
B. S., Clemson Agricultural College
Gehrs, John Henry — *Pleasant Hill, Mo.*
B. S., Missouri University
Gilbert, Alfred Holley — *Lexington, Ky.*
B. S., University of Vermont
Gilman, Joseph Charles g — *Racine*
B. S., University of Wisconsin
Glasspoole, James Edward — *Mondovi*
B. S., University of Wisconsin
Greenberg, David Benjamin — *Arverne, N. Y.*
B. A., Columbia University
Hall, E. Eugene — *Fort Mill, S. C.*
B. S., Agricultural College of South Carolina
Hanley, Blanche Margaret — *Terre Haute, Ind.*
Ph. B., University of Chicago
Hayes, Augustus Washington — *Pleasant Plains, Ill.*
B. S., University of Illinois
Hepler, Jesse Raymond g — *Madison*
B. S., Pennsylvania State College
Hubert, Benjamin F. — *Orangeburg, S. C.*
B. S., Mass. Agricultural College
Humphrey, Howell Harris — *Wild Rose*
B. A., Ripon College
Humphrey, Robert A. g — *Wild Rose*
B. A., Ripon College
Ibsen, Herman Lauritz g — *Chicago, Ill.*
M. S., University of Wisconsin
Irwin, E. E. — *Imlay City, Mich.*
B. Pd., Michigan State Normal
Johnson, Aaron Guy g — *Madison*
M. S., Purdue University
Jones, Fred Reuel g — *Madison*
B. S., University of Maine
Kelley, Francis James g — *Madison*
B. S., University of Pennsylvania
Kraege, Frederick G. — *Mazomanie*
M. L., University of Wisconsin
Kyper, Karl H. — *Pioneer, O.*
B. S., Tri State College
Lannerd, Willard — *Racine*
B. S., Purdue University
Lantis, Lee Ora — *Columbus, O.*
M. A., Miami University
Lloyd-Jones, Orren — *Hillsdale*
M. S., University of Wisconsin

Loesch, Joseph B. *Chicago, Ill.*
B. S., University of Wisconsin
McLeod, John Hoyne g *Wills Point, Texas*
B. S., Texas Agricultural and Mechanical College
MacMillan, Howard Gove g *Madison*
M. S., University of Wisconsin
Mathie, Edward Joseph *Arena*
B. A., University of Wisconsin
Morris, William Earl *Madison*
B. A., University of Wisconsin
Morriss, Elizabeth Cleveland *Madison*
B. A., Judson College
Ospina, Mariano *Medellin, Columbia, S. A.*
M. S., Louisiana State University
Parsons, Helen Tracy g *Arkansas City, Kans.*
B. S., Kansas State Agricultural College
Parsons, Mary Russell *Arkansas City, Kans.*
B. S., Kansas State Agircultural College
Patterson, Percival P. *Madison*
Ph. B., University of Wisconsin
Phillips, Eugene Martin *Freeport, Ill.*
B. A., University of Illinois
Porter, Dwight Ernest *Oklahoma City, Okla.*
B. A., Kingfisher College
Riley, James Alvin *Denmark, S. C.*
B. S., Clemson Agricultural College
Samson, Eloise g *Madison*
B. S., Simpson College
Schoffer, Thushelda *Milwaukee*
B. A., Vassar College
Scoville, Luella Mae g *Madison*
B. S., University of Wisconsin
Seely, Louise H. *Jersey City, N. J.*
B. S., Columbia Teachers College
Sherman, James Morgan g *McLean, Va.*
M. S., University of Wisconsin
Spinner, Delia Grant *Galesburg, Ill.*
B. S., Knox College
Stemple, Forrest Wilbur g *Aurora, W. Va.*
B. A., West Virginia University
Stewart, Wilbur Filson g *Milton Jct.*
B. A., Milton College
Stine, Oscar Clemen g *Sparta*
Ph. B., Ohio University
Stokes, William Eugene *Bamberg, S. C.*
B. S., Clemson Agricultural College
Stover, Wilmer Garfield *Columbus, O.*
M. A., Miami University
Strahan, Elmer Reece *Pheba, Miss.*
B. S., Mississippi Agricultural and Mechanical College

Strowd, Wallace Heoden — *Chapel Hill, N. C.*
B. A., University of North Carolina
Trautmann, Harrison — *Sheboygan*
B. A., Northwestern College (Naperville, Ill.)
Tyrrell, Bessie Florila g — *Madison*
B. A., University of Wisconsin
Utley, Mildred J. — *Gloversville, N. Y.*
B. A., Cornell University
Vaughan, Richard English g — *Madison*
M. S., University of Wisconsin
Veitch, Mildred Margaret — *Grand Forks, N. D.*
B. A., University of North Dakota
Vittumm, Merle Watson — *Sioux Falls, S. D.*
B. A., Illinois College
Weenink, Benjamin William g — *Madison*
Ph. B., University of Wisconsin
Wigent, Zella — *Chicago, Ill.*
Ph. B., University of Chicago
Wilcox, Raymond Boorman — *Madison*
M. S., University of Wisconsin
Willaman, John James — *Rockford, Ill.*
B. S., University of Wisconsin
Williams, Gladys — *Jackson, Miss.*
B. A., Mississippi State Woman's College
Willis, Mina Augusta g — *Rewey*
B. S., University of Wisconsin
Workman, Albert Clinton — *Bethany, W. Va.*
M. A., Hiram College
Wright, Addie Emlin — *Fairmount, Ind.*
B. A., Earlham College

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UNDERGRADUATES

Albert, Arthur Robert a — *Horicon*
Allen, Georgia — *Carlyle, Ill.*
Alverson, Miles Coming — *Medford*
Appleman, George Mordecai — *Viroqua*
Atkins, Russell Crowe — *Salem, N. C.*
Balyeat, Orley E. — *Sparta, Mich.*
Barnes, Fayne J. a — *Madison*
Bateman, John Wesley — *Natchitoches, La.*
Bateman, Mrs. John Wesley — *Natchitoches, La.*
Batman, Nancy Miles — *Louisville, Ky.*
Baumeister, George Frederick a — *Boscobel*
Bender, Edwin S. — *Reno, Nevada*
Berge, Abel John — *Brooklyn*
Bock, Hazel Dowling — *Eau Claire*
Bollman, Charles Cyril a — *Rockford, Ill.*
Botkin, Stella F. — *Ottumwa, Ia.*
Brayton, Harold Renshaw ls — *Madison*

Brittingham, Nelson George	*Gomez Palacio Dgo, Mex.*
Brown, Allan G.	*Almond*
Brown, Edward Sutherland	*Normal, Ill.*
Brown, Taylor Grover	*Richland Center*
Browne, Margaret	*Pentwater, Mich.*
Burns, Clifford Clare	*Rockford, Ill.*
Burr, Mrs. Charles Gilbert	*Emporia, Va.*
Bushnell, George Ernest	*Platteville*
Campion, Thomas Howard	*Montello*
Cape, Jane B. a	*Dodgeville*
Chandler, Stewart C. a	*Superior*
Colby, Grace ls	*Madison*
Coldwell, Valeria G. a	*Blue Mounds*
Collentine, Mary	*Argyle*
Craig, Clark W.	*Rush Lake*
Craig, Mellie H.	*Bowling Green, Mo.*
Cramer, Albert Julius a	*Madison*
Creel, Joseph E.	*Valdorta, Ga.*
Dahl, Charles Henry	*Marinette*
Dahl, Henry g	*Blair*
Davidson, Cecel Gordon	*Madison*
Davy, Alicia	*Oconomowoc*
Dean, Ethel Ruhmer	*Milwaukee*
De Quire, George	*Madison*
Dick, Jason Peter	*Scottville, Mich.*
Dilley, Mamie	*Hebron, Ind.*
Dillon, George Edward a	*Red Oak, Ia.*
Dittrich, August	*Chicago, Ill.*
Dopkins, Clyde De Forrest a	*River Falls*
Douglas, Clayton Orville a	*Oshkosh*
Drotning, Anna Elizabeth	*Stoughton*
Dulaney, Grace a	*Slater, Mo.*
Dustrude, Willard Arthur a	*Oconomowoc*
Dyer, Frances M.	*Milwaukee*
Dykesten, Maybelle Lenora	*Madison*
Edwards, Edmund Bernard a	*San Benito, Tex.*
Eigenberger, George Harold	*Manitowoc*
Ellsworth, Ida Estelle a	*Madison*
Emmert, Emma Josephine	*Des Plaines, Ill.*
Evert, Charles W. a	*Milwaukee*
Farquhar, Florence a	*Chicago, Ill.*
Fawcett, Charles Ephram a	*Madison*
Fine, Tina	*Sheyenne, N. D.*
France, Lloyd Victor a	*Platteville*
dela Fuente, Jesus R. a	*Madadores, Coah, Mex.*
Gautschi, Irma Charlotte	*Washburn*
Geimer, Max P.	*Denmark*
George, Iola Frances g	*Monticello, Ia.*
Gibson, Henderson Sara	*Louisville, Ky.*
Graves, Frank Wilkinson	*Silver Green, N. Y.*

Groskopf, Lulu Frances	*Milwaukee*
Groth, George Arthur	*Cedarburg*
Gunn, Marion E.	*Mentor, O.*
Gustafson, Wallace H.	*Stockholm*
Haddon, May Ellen	*Harperville, Miss.*
Hall, Saidee L. a	*Cambridge*
Hammer, John M. a	*Spring Valley*
Hammersley, Ralph W.	*Madison*
Hansen, William Carl a	*Withee*
Hanson, Helena Christine Louise a	*Neenah*
Hanson, Lewis Peter a	*Madison*
Hatch, Lisle Campbell	*Augusta*
Hawkins, Marjorie Deane	*Chicago, Ill.*
Henry, Alexander Lloyd	*Wonewoc*
Herrick, Frances E.	*Medford*
Hertel, Joseph Paul a	*Chilton*
Hibbard, Carrie A. a	*Madison*
Hickey, James Sheridan a	*Milwaukee*
Hinshau, Rebecca Harvey	*Oskalossa, Ia.*
Hints, Richard Francis	*Cheyenne, Wyo.*
Hoffman, Annette Jane	*Des Plaines, Ill.*
Hoffmann, Louise	*Cincinnati, O.*
Hosmann, Julio G. a	*Buenos Aires, Arg.*
Householder, Glen Monroe a	*Richland Center*
Hoym, Rose E.	*Jersey City, N. J.*
Huaco, S. Arturo	*Arequipa, Peru*
Hughes, Daniel Patrick	*Neillsville*
Jamieson, Hugh John ls	*Poynette*
Johnson, Allen	*Milwaukee*
Johnson, Julia Dean	*Cincinnati, O.*
Johnson, Leland S. a	*Grand Rapids*
Johnson, Marshall C. a	*Madison*
Jones, T. Leslie	*Arena*
Kalmbach, Ethel Alberta a	*Sturgeon Bay*
Kasten, Albert William	*Clintonville*
Kedney, Henry S. a	*Madison*
Kell, Herman F.	*Grand Rapids*
Kerns, Nancy Morrison	*Kansas City, Mo.*
Kirsch, William a	*Madison*
Kletzsch, Adolph Gustav a	*Milwaukee*
Kracht, Edward a	*Mishicot*
Krugh, Bertha Anna	*Pittsburgh, Pa.*
Kuney, Bernice D. ls	*Three Lakes*
Lambe, Emma Harriet	*Chicago, Ill.*
Lambert, William Henry a	*St. Louis, Mo.*
Latham, Gladys a	*Madison*
Lerner, Nathan Hyman a	*New York, N. Y.*
Levy, Edmond J. a	*Milwaukee*
Lewis, Stevenson Paul a	*Cleveland, O.*
Lightcap, Earl K.	*Hazel Green*

Livingston, William Francis	*Milton Jct.*
Loebe, Robert a	*Chicago, Ill.*
Lothe, Ada Belinda	*Stoughton*
Lunz, Henry	*Madison*
Lyon, Clarence Howard	*Kansas City, Kans.*
MacDonald, Mrs. Rachael	*Ft. Worth, Texas*
MacGilvra, Ralph Alexander a	*Baraboo*
Machotka, Joseph Frank a	*Muscoda*
Mazzini, Luis T. a	*Lima Peru, South America*
Meloche, Gladys Louise	*Madison*
Meyer, Benno Walter a	*Milwaukee*
Miller, Clara Josephine a	*Madison*
Miller, Claudia	*Borden, Ind.*
Mills, Hugh Raymond a	*Madison*
Mitchell, Edna Thomas	*Pittsburg, Pa.*
Morley, Fannie Edna a	*Baraboo*
Mortimer, George B. a	*Chilton*
Morton, Sarah Elizabeth	*Newton Falls, O.*
Muller, Adolphus Gustavus	*Portland, N. D.*
Murphy, Clare R.	*Lawton, Mich.*
Nathan, Edward C. a	*Chicago, Ill.*
Nevens, William Barbour a	*Madison*
Newcomb, Alta	*Pepin*
Newell, Lawrence Plympton a	*Hinsdale, Ill.*
Nichols, Philip Lesley a	*Sheboygan Falls*
Norwood, Evan Wilkins	*Goldsboro, N. C.*
Noyes, William Baker a	*Beaver Dam*
Oldenberg, Frederic Willian	*Cumberland*
Olson, Thomas N. a	*Sawyer*
O'Neill, Margaret J.	*Mineral Point*
Opstedal, Anthon Johannes	*Madison*
Opstedal, Joseph A. a	*Madison*
Orr, Glen Harrison a	*Oregon*
Ostrander, Ralph Lester	*Lone Rock*
Pan, Chu Chi a	*Kwangsi, China*
Parry, Susie	*Norwood, Ohio*
Pearce, Myrtle May	*Lowell, Ind.*
Phillips, Albert D. a	*Madison*
Poor, Charles L.	*Hudson, Mich.*
Potgieter, Dietlof Siegfried Mare a	*Amersfoort, Trans., S. A.*
Poulterm, Mary Alice a	*Cumberland*
Prucha, Edward Joseph a	*Mishicot*
Quick, Hazel A.	*Wahpeton, N. D.*
Richards, Clarke A. a	*Madison*
Rogan, James William	*Oconomowoc*
Ross, Livingston a	*Rensselaer, Ind.*
Ruehl, H. Adolph a	*Milwaukee*
Rundell, Ada a	*Platteville*
Salter, Raymond	*Madison*
Saltus, Drucilla	*Sterling, Colo.*

Sanford, William Albert a	*Ellsworth*
Sarkis, Boshnakian a	*Madison*
Sazama, Joseph Elias ls	*Kewaunee*
Schenkenberg, Lee Jay a	*Waterford*
Schiel, Elenor	*Cincinnati, O.*
Schoenfeld, Ida Leona	*Cincinnati, O.*
Schwab, William Stix	*St. Louis, Mo.*
Seeber, Helen Marie a	*Waterloo*
Sharp, Agnes Ethel	*Madison*
Shoemaker, Ella M. a	*Janesville*
Smith, Arthur Joseph	*Sturgeon Bay*
Stamm, Alma	*Cincinnati, Ohio*
Stitt, Donald G.	*El Paso, Texas*
Storer, Willis Daniel, Jr. a	*Lexingtgon, Ky.*
Strahan, Jessie B.	*Pheba, Miss.*
Street, John Anderson, Jr. a	*Chicago, Ill.*
Swanson, Georgia	*Navasota, Tex.*
Sweet, Viola Donegan	*Ft. Worth, Tex.*
Taylor, Homer R.	*New Carlisle, Ind.*
Teeter, Guy A.	*Bellville, O.*
Thompson, Annie	*Wilmette, Ill.*
Turner, Everett M.	*Goldsberry, Mo.*
Van der Byl, Pieter Gerhard a	*Pretoria, South Africa*
Van Evera, Rynier a	*Marquette, Mich.*
Van Neman, Loula	*Carthage, Mo.*
Voskuil, Walter Henry a	*Cedar Grove*
Wall, Agnes A.	*Helena, Mont.*
Waller, James Flint	*Big Stone Gap, Va.*
Wanzer, James Marshall	*Oak Park, Ill.*
Weaver, Susie	*Austin, Tex.*
Wheeler, John T.	*North Tawanda, Pa.*
Wilcox, Frederick Seacard a	*Elgin, Ill.*
Wilkinson, Irma a	*La Valle*
Wilkinson, Mattie	*La Valle*
Willard, Harold Nelson	*Baltimore, Md.*
Williams, Ada Mae	*Worthingtgon, Ind.*
Wilson, James Delaware	*Madison*
Wilson, Samuel S.	*Hazel Green*
Wilson, William Clark a	*Greenhall, Ky.*
Wise, Adolph Harry a	*Chattanooga, Tenn.*
Woestenberg, Henry W.	*Appleton*
Woll, Margaret Louise a	*Madison*
Wood, George Collins	*Edinton, N. C.*
Woodard, Allen Byrne a	*Marengo, Ill.*
Wright, Morris Harry a	*New London*
Zimmerman, Emil	*Chicago, Ill.* —213

DAIRY COURSE

Bender, Edwin Samuel	*Reno, Nev.*	
Daines, Hazall A.	*Valley*	
Galloway, Earl John	*Alma Center*	
Howland, Roberts Paddock	*Chicago, Ill.*	
Hvai, Arthur	*Duluth, Minn.*	
Kundert, Fred	*Brodhead*	
Luebke, Emil William	*Neenah*	
Luedtke, Orlando Frederick	*Milwaukee*	
Roeser, Emil George	*Sister Bay*	
Roou, Oscar W.	*Melrose*	
Stryk, Stanley	*Thorp*	—11

LAW

Allbee, Oakla Homa	*Grinnell, Ia.*
Anderson, Charles Thomas ls, l	*Madison*
Baldwin, Theodore Whig	*Oak Park, Ill.*
Beach, Paul Mell, l	*Racine*
Byrd, Thomas Bolling	*Winchester, Va.*
Canty, Sam Benton, Jr.	*Fort Worth, Tex.*
Carlson, David Lawrence, B. A.	*Jamestown, N. Y.*
Carmichael, Raymond B., B. A.	*Rockford, Ill.*
Clemens, Albert Harrison, B. A.	*Madison*
Cronin, Timothy Theodore, Ph. B.	*Oconomowoc*
Davis, Homer Allan l	*La Crosse*
Denny, Francis Otway	*New Orleans, Ia.*
Dietze, Carl Edgar, B. A. l	*Mayville*
Dittmer, Winfred Cyril l	*Seymour*
Donaldson, Nellie King l	*Racine*
Duel, Morvin Morris	*Fond du Lac*
Elliott, Clifford Withrow, B. A.	*Hamilton, Ohio*
Erickson, George D. l	*Lafayette, Minn.*
Findlay, Walter Alexander ls	*Madison*
Ganssle, Waldorf Louis	*Minneapolis, Minn.*
George, Leo Byron, B. A.	*Madison*
Goggins, George Matthew l	*Chilton*
Griswold, Morley, B. A.	*Elko, Nev.*
Harvey, Alfred Spearman l	*Milwaukee*
Horner, Herbert Frank l	*Finley, N. D.*
Johnson, Easton	*Brodhead*
Johnson, Edward Elsworth	*Waupaca*
Johnson, Herbert Theodore l	*Crown Point, Ind.*
Jorstad, Anton	*Green Bay*
Kelly, Frank Joseph l	*Milwaukee*
Kingsford, Alfred C., B. A.	*Baraboo*
Kleinpell, Arthur, B. A.	*Cassville*
Kohler, Bert M.	*Chicago, Ill.*

Korf, George Franklin, Ph. B. l	*Madison*	
Lawrie, Ida Maggie Cuthbertson l	*Waukesha*	
Loftsgordon, Henry Albert ls	*Madison*	
McBean, Alan Johnston, B. A.	*Minneapolis, Minn.*	
McCaul, Michael	*Eagleville, Mo.*	
McCullough, Reuben Calhoun, B. A.	*Minneapolis, Minn.*	
MacQuarrie, Archibald Ernest l	*Oshkosh*	
Markowitz, Maurice, Ph. B.	*Chicago, Ill.*	
Martin, Patrick Henry Jr. l	*Fond du Lac*	
Melzer, Edgar, B. A. l	*Watertown*	
Meyer, Bernard Edward l	*Marion*	
Meyers, Erwin Aaron, B. A. l, g	*Evansville*	
Miller, Guy D., B. A.	*Indianapolis, Ind.*	
Mulrine, Lewis Clifford	*Black River Falls*	
Nye, James Gordon l	*Madison*	
Phelan, Walter Quinn, B. A.	*Cheyenne, Wyo.*	
Powers, Earl Robert l	*Janesville*	
Rademacher, Henry Stephen l	*Milwaukee*	
Rafter, Joseph Leo, M. A.	*Scranton, Pa.*	
Reed, Nathan William l	*Rosendale*	
Reiser, Robert Mathew l	*Madison*	
Robinson, Louis J., LL. B. l	*Milwaukee*	
Rodolf, McKeriel l	*Ft. Atkinson*	
Rudow, Henry William l	*River Falls*	
Samp, Edward Joseph, B. A. l	*Cecil*	
Sazama, James J. l	*Kewaunee*	
Sherman, Thomas B. l	*Milwaukee*	
Siebecker, Lee Fa Follette l	*Madison*	
Simpson, Charles D., B. A.	*West Concord, Minn.*	
Smith, Glen Edward, E. E.	*Madison*	
Spencer, Paul Richard	*River Falls*	
Steinfeldt, Richard George	*Green Bay*	
Stordahl, Benet, B. A.	*Baltic, S. D.*	
Thiel, John August ls, l	*Chilton*	
Thomann, Albert J.	*Madison*	
Walden, Edward Job l	*Madison*	
Wattawa, John, B. A.	*Madison*	
Webster, William Brennan, B. A. g, l	*Hudson*	
Whitcomb, Arthur Joseph	*Abrams*	
Wood, John Lynn ls	*Milton*	
Wylie, Fredrick M. l	*Madison*	—74

SUMMARIES

FACULTY

Emeritus Professors	5
Professors	95
Associate Professors	51
Assistant Professors	112
Lecturers (giving part time)	20
Instructors	213
Assistants (mainly half time, but few more than half time and considerable number less than half time)	155
Total	651

Included in the above are 15 administrative officers of the following rank: Professors, 2; Assistant Professors, 8; Instructors, 4; Assistants, 1.

Included in the above are the following who are on leave of absence for the academic year 1913–14: Professors, 3; Assistant Professors, 2.

STUDENTS

GRADUATE SCHOOL—437		
Fellows	30	
Scholars	21	
Other Graduate Students	386	
(Not carried to totals because included in lists below.)		
COLLEGE OF LETTERS AND SCIENCE		2,653
Graduate Students	334	
Senior Class	483	
Junior Class	518	
Sophomore Class	485	
Freshman Class	710	
Adult Special Students	99	
Two-Year Pharmacy Students	24	
Included in the above are the following:		
Letters and Science Students not in special Courses—1,656		
Graduate Students	324	
Senior Class	184	
Junior Class	235	
Sophomore Class	360	
Freshman Class	475	
Adult Special Students	78	

Course in Commerce—396
- Senior Class 66
- Junior Class 59
- Sophomore Class 82
- Freshman Class 183
- Adult Special Students..... 6

Course for Normal School Graduates—45
- Senior Class 23
- Junior Class 22

Course in Journalism—88
- Senior Class 7
- Junior Class 16
- Sophomore Class 21
- Freshman Class 34
- Adult Special Students..... 10

Course in Pharmacy—40
- Four Years' Course
  - Senior Class 5
  - Junior Class 5
  - Sophomore Class 4
  - Freshman Class 2
- Two Years' Course
  - Second Year 12
  - First Year 12

Course in Chemistry—73
- Senior Class 15
- Junior Class 20
- Sophomore Class 18
- Freshman Class 16
- Adult Special Students..... 4

Course for Training of Teachers—387
- Graduates 10
- Seniors 203
- Juniors 173
- Adult Special Students..... 1

(20 Seniors and 12 Juniors are in two of above courses.)

COLLEGE OF ENGINEERING..... 738
- Graduate School 18
- Senior Class—136
  - Civil Engineering Course 47
  - Mechanical Engineering Course 28
  - Electrical Engineering Course..... 45
  - Chemical Engineering Course 11
  - Mining Engineering Course 5
- Junior Class—156
  - Civil Engineering Course..... 43
  - Mechanical Engineering Course..... 42
  - Electrical Engineering Course..... 35
  - Chemical Engineering Course..... 27
  - Mining Engineering Course..... 9

Sophomore Class—154			
Civil Engineering Course		49	
Mechanical Engineering Course		38	
Electrical Engineering Course		48	
Chemical Engineering Course		14	
Mining Engineering Course		5	
Freshman Class		251	
Adult Special Students		23	
Students in Advanced Course included in the above:			
Civil Engineering Course	21		
Mechanical Engineering Course	10		
Electrical Engineering Course	16		
Chemical Engineering Course	7		
Mining Engineering Course	1—55		
COLLEGE OF AGRICULTURE			1,022
Graduate Students		85	
Long Course			
Senior Class	109		
Junior Class	143		
Sophomore Class	134		
Freshman Class	181		
Adult Special Students	30—	597	
Middle Course			
Second Year	44		
First Year	83		
Adult Special Students	8—	135	
Home Economics Course			
Senior Class	35		
Junior Class	44		
Sophomore Class	48		
Freshman Class	74		
Adult Special Students	4—	205	
Included in the above are the following:			
Course for Training of Teachers			
Seniors	50		
Juniors	65—	115	
LAW SCHOOL			169
Third Year		39	
Second Year		36	
First Year		52	
Seniors in Letters and Science electing law studies		20	
Unclassified Students		22	
MEDICAL SCHOOL			82
Second Year		23	
First Year		57	
Course in Public Health		2	

SCHOOL OF MUSIC			95
Graduate Students		2*	
Senior Class		1	
Junior Class		3	
Sophomore Class		7	
Freshman Class		10	
Adult Special Students		2	
Supervisors' Course			
Second Year		14	
First Year		28	
Adult Specials		2	
Included in the Supervisors' Course are the following:			
Course for Training of Teachers			
Second Year	6		
First Year	21		
Adult Specials	2	29	
Unclassified Students		26	
Students in other colleges electing Music—338			
WISCONSIN LIBRARY SCHOOL			43
Library Course		28	
Joint Course		8	
Course in Library Administration and Public Service		7	
TOTAL			4,802
Deducting twice enumerated			116
NET TOTAL, REGULAR YEAR			4,686
SUMMER SESSION OF 1913—2,132			
Letters and Science—			
Graduate Students	582		
Undergraduates and Teachers	964		
Music	14		
Students in other colleges electing music	123		
Law School	74		
Engineering—			
Graduate Students	19		
Undergraduates	167		
Agriculture—			
Graduate Students	88		
Undergraduates	213		
Dairy School	11	2,132	
Included in the above are the following:			
Advanced Teachers' Course	18		
Deducting students now attending the university		686	1,446
ADDITIONAL ENROLLMENT, COLLEGE OF AGRICULTURE			633
Short Course—			
Second Year	151		
First Year	299	450	
Dairy Course		155	

*Not included in Graduate School.

Forest Rangers' Course—		
Second Year	9	
First Year	19—	28
GRAND TOTAL EXCLUDING EXTENSION STUDENTS		6,765

In the enumeration of adult special students above the classification by courses is as follows: Letters and Science, fourth year, 6; third year, 13; second year, 20; first year, 60. Music, second year, 1; first year, 3. Electrical Engineering, third year, 1. Mechanical Engineering, third year, 2; second year, 4. Civil Engineering, third year, 3; second year, 3. Chemical Engineering, second year, 1. Mining Engineering, second year, 1. First year students in Engineering, 8. Agriculture, fourth year, 4; third year, 5; second year, 9; first year, 12. Agriculture (Middle Course), second year, 1; first year, 7. Home Economics, third year, 2; first year, 2.

Twice counted, 116, composed of students in Medicine, 70; Course in Public Health, 2; Law, 29; Course in Library Administration and Public Service, 7; and Wisconsin Library School, 8.

EXTENSION DIVISION (EXTRA MURAL COLLEGE)—	
Correspondence-Study Department	6,126

This total enrollment comprises all those who have enrolled for correspondence instruction within the current year, and also those carried over who had enrolled prior to July 1, 1913, but whose registration was then in force and whose time limit for completion of work had not terminated. Correspondence-study enrollments are made at any time throughout the entire year.

SUMMARY BY STATES, FOREIGN COUNTRIES, AND SEX

	Men	Women	Total
Wisconsin	3,246	1,176	4,422
Illinois	383	191	574
Indiana	99	103	202
Iowa	102	70	172
Ohio	92	68	160
Michigan	63	60	123
Missouri	65	52	117
Minnesota	83	33	116
New York	52	24	76
South Dakota	40	22	62
Kentucky	38	23	61
Pennsylvania	32	24	56
Kansas	24	28	52
North Dakota	28	16	44
Montana	33	10	43
Texas	24	15	39
District of Columbia	17	14	31
Colorado	13	10	23
Nebraska	13	10	23
New Jersey	15	6	21
West Virginia	17	4	21
Virginia	16	2	18
Washington	15	3	18
Maryland	12	5	17
Mississippi	9	8	17
California	10	6	16
Massachusetts	9	6	15
Oklahoma	10	4	14
Oregon	11	2	13
South Carolina	12	..	12
Idaho	8	2	10
Alabama	6	3	9
Connecticut	5	4	9
Tennessee	6	2	8
Arkansas	3	4	7
North Carolina	6	..	6
Arizona	2	2	4
Georgia	3	1	4
Louisiana	2	2	4
Maine	3	1	4
Wyoming	3	1	4
Nevada	3	..	3
Utah	3	..	3
Florida	2	..	2
New Hampshire	2	..	2
New Mexico	1	1	2

Alaska Territory	1	..	1
Rhode Island	1	..	1
Vermont	1	..	1
China	33	..	33
Canada	13	2	15
Mexico	9	..	9
Brazil	7	..	7
Japan	7	..	7
India	6	..	6
Peru	3	..	3
Philippine Islands	3	..	3
Germany	3	..	3
Cuba	2	..	2
England	2	..	2
Norway	1	1	2
Porto Rico	2	..	2
Transvaal	2	..	2
Turkey	2	..	2
Argentine	1	..	1
Colombia	1	..	1
Korea	1	..	1
Costa Rico	1	..	1
Switzerland	1	..	1
Total	4,744	2,021	6,765
Students registered for regular year, 1913—14			
Resident	2,362	939	3,301
Non-resident	996	389	1,385
Total	3,358	1,328	4,686
Students registered in Summer Session of 1913, not included in above.			
Resident	338	235	573
Non-resident	420	453	873
Total	758	688	1,446
Additional Enrollment, College of Agriculture			
Resident	546	2	548
Non-resident	82	3	85
Total	628	5	633

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