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BULLETIN
of the
UNIVERSITY of WISCONSIN

GENERAL ANNOUNCEMENT OF COURSES 1938—1939

(CATALOG 1937-1938)

PUBLISHED AT MADISON, WISCONSIN
AUGUST 1938

Ch. D

Bulletin of the University of Wisconsin
Serial No. 2347 General Series No. 2131 August 1938

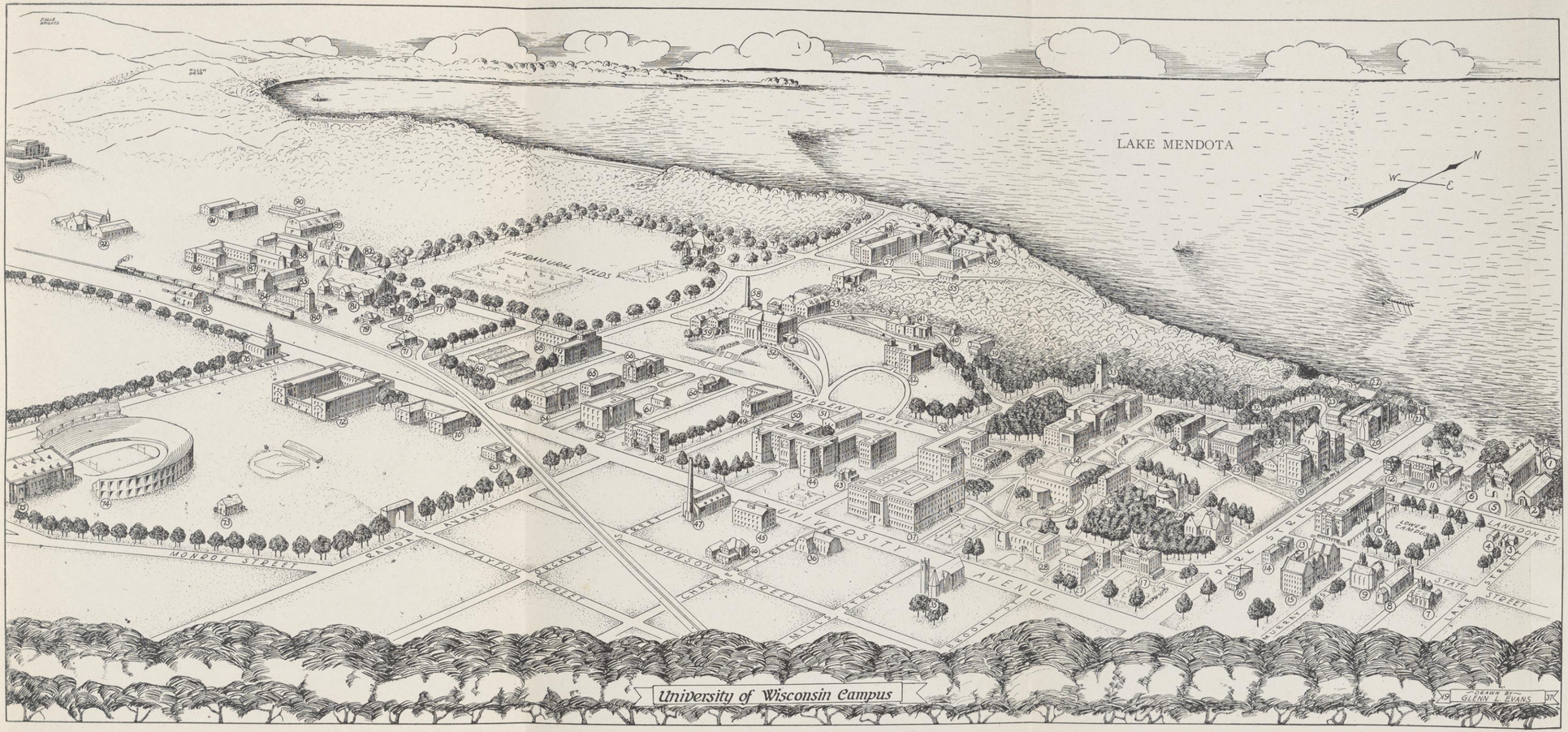
GENERAL ANNOUNCEMENT OF COURSES

1938-39

(CATALOG 1937-38)

ISSUED MONTHLY BY THE UNIVERSITY OF WISCONSIN AT MADISON, WISCONSIN. ENTERED AS SECOND-CLASS MATTER, JULY 11, 1916, AT THE POST OFFICE AT MADISON, WISCONSIN, UNDER THE ACT OF CONGRESS OF AUGUST 24, 1912. . . .

PUBLISHED AT MADISON, WISCONSIN
AUGUST, 1938



University of Wisconsin Campus

NUMERICAL INDEX

1. Boathouse
2. Gymnasium Annex
3. University Editor's Office
4. Athletic Ticket Office
5. Gymnasium and Armory
6. Y.M.C.A. Building
7. Calvary Lutheran Church
8. St. Paul's Catholic Church
9. Presbyterian Student Center
10. State Historical Library
11. Memorial Union
12. Old Union—Student Employment Bureau
13. Administration Annex
14. Administration Building
15. University Club
16. Music Annex
17. Chadbourne Hall
18. Music Hall
19. Science Hall
20. Chemical Engineering Bldg.
21. Biology Marine Laboratory
22. Hydraulics Laboratory
23. Art Education Bldg. & Electrical Laboratory
24. Radio Hall
25. Engineering Building
26. Law Building
27. Barnard Hall
28. Lathrop Hall
29. Biology Building
30. South Hall
31. North Hall
32. Ski Slide
33. Carillon Tower
34. Bascom Hall
35. Luther Memorial Church
36. Wesley Foundation
37. Chemistry Building
38. Sterling Hall
39. Observatory Residence
40. Student Observatory
41. Washburn Observatory
42. Extension & Home Economics Bldg.
43. Medical School Office
44. Wisconsin General Hospital
45. Service Building
46. Photographic Laboratory & Bureau of Visual instruction
47. Heating Plant
48. Nurses' Dormitory
49. Orthopedic Hospital
50. Student Infirmary
51. Bradley Memorial Hospital
52. Agricultural Hall
53. Soils Building
54. Refectory
55. Dormitory Garage
56. Tripp Hall
57. Adams Hall
58. Agricultural Bulletin Bldg.
59. Hiram Smith Hall (Dairy Bldg.)
60. Practice Cottage
61. Artist's Studio
62. Wisconsin High School
63. Alumni Research Laboratory
64. Agricultural Chemistry Bldg.
65. Genetics Building
66. Agricultural Engineering Bldg.
67. Residence—Dean of Agriculture
68. Horticulture & Agronomy Bldg.
69. Greenhouses
70. Mining & Metallurgy Bldg.
71. Economic Entomology Bldg.
72. Mechanical Engineering Bldg.
73. Women's Field House
74. Stadium
75. Field House
76. First Congregational Church
77. Animal Husbandry Bldg.
78. Farm Superintendent—Residence
79. Asst. Farm Superintendent—Residence
80. Short Course Dormitory
81. Stock Pavilion
82. Horse Barn Beef Cattle Barn
83. Wagon Shed
84. Feed Storage
85. Poultry Building
86. Kleinheinz Hall
87. Genetics Barn
88. Beef Cattle Sheds
89. Beef Cattle Barn
90-91. Swine Barns
92. Dairy Barns
93. Forest Products Laboratory

ALPHABETICAL INDEX

13. Administration Annex
14. Administration Building
57. Adams Hall
58. Agricultural Bulletin Bldg.
64. Agricultural Chemistry Bldg.
66. Agricultural Engineering Bldg.
52. Agricultural Hall
68. Agronomy & Horticulture Bldg.
63. Alumni Research Laboratory
77. Animal Husbandry Bldg.
5. Armory and Gymnasium
23. Art Education Bldg. & Electrical Standards Laboratory
61. Artist's Studio
79. Asst. Farm Superintendent—Residence
4. Athletic Ticket Office
27. Barnard Hall
34. Bascom Hall
89. Beef Cattle Barn
82. Beef Cattle Barn (Old)—Horse Barn
88. Beef Cattle Sheds
29. Biology Building
21. Biology Marine Laboratory
1. Boathouse
51. Bradley Memorial Hospital
46. Bureau of Visual Instruction
7. Calvary Lutheran Church
33. Carillon Tower
17. Chadbourne Hall
20. Chemical Engineering Bldg.
37. Chemistry Building
92. Dairy Barns
59. Dairy Building (Hiram Smith Hall)
67. Dean of Agriculture—Residence
55. Dormitory Garage
71. Economic Entomology Bldg.
23. Electrical Standards Laboratory
25. Engineering Building
42. Extension & Home Economics Bldg.
78. Farm Superintendent—Residence
84. Feed Storage
75. Field House
76. First Congregational Church
93. Forest Products Laboratory
87. Genetics Barn
65. Genetics Building
69. Greenhouses
5. Gymnasium and Armory
2. Gymnasium Annex
47. Heating Plant
59. Hiram Smith Hall (Dairy Bldg.)
42. Home Economics & Extension Building
82. Horse Barn—Beef Cattle Barn (Old)
68. Horticulture and Agronomy Building
22. Hydraulics Laboratory
50. Infirmary
86. Kleinheinz Hall
28. Lathrop Hall
26. Law Building
35. Luther Memorial Church
72. Mechanical Engineering Bldg.
43. Medical School Office
11. Memorial Union
70. Mining & Metallurgy Bldg.
16. Music Annex
18. Music Hall
31. North Hall
48. Nurses' Dormitory
39. Observatory Residence
12. Old Union—Student Employment Bureau
49. Orthopedic Hospital
46. Photographic Laboratory & Bureau of Visual Instruction
85. Poultry Building
60. Practice Cottage
9. Presbyterian Student Center
24. Radio Hall
54. Refectory
79. Residence—Asst. Farm Superintendent
67. Residence—Dean of Agriculture
78. Residence—Farm Superintendent
19. Science Hall
45. Service Building
80. Short Course Dormitory
32. Ski Slide
53. Soils Building
30. South Hall
74. Stadium
10. State Historical Library
38. Sterling Hall
81. Stock Pavilion
8. St. Paul's Catholic Church
12. Student Employment Bureau—Old Union
40. Student Observatory
90-91. Swine Barns
56. Tripp Hall
15. University Club
3. University Editor's Office
10. University Library
83. Wagon Shed
41. Washburn Observatory
36. Wesley Foundation
24. WHA Broadcasting Station
44. Wisconsin General Hospital
62. Wisconsin High School
73. Women's Field House
6. Y.M.C.A. Building

TABLE OF CONTENTS

PART I—ORGANIZATION

Calendars ..... viii, ix
The Regents and the Board of Visitors x
Administrative Officers xi
Standing Committees of the University Faculty xiv
Instructional and Administrative Staffs xvi
Fellows and Scholars lxl
Faculty Summary lxvii
Public Lectures lxviii

PART II—GENERAL INFORMATION

History and Government 1
Publications of the University 6
The Campus 6
Libraries 8
General Academic Requirements 9
Courses and Degrees 10
Honors and Prizes 11
Student Expense 13
- University Charges—Fees and Tuition 13
- Self-Support 16
- Summary of Expenses 17
- Loan Funds and Undergraduate Scholarships 18

Room and Board 22
- Residence Halls for Women 23
- Residence Halls for Men 23
- Cooperative Houses 24

Student Life 26
- Division of Social Education 27
- Faculty Supervision 27
- Student Government 27
- Student Health 29
- Societies and Publications 30

PART III—ADMISSION

Methods of Admission 34
- Freshman Period 34
- General Requirements 35
- Special Requirements 37
- Foreign Language 38
- Admission upon Certificate 38
- Admission upon Examination 40
- Admission on the Adult Special Basis 41
- Admission with Advanced Standing 41
- Scope of Preparatory Work 42

PART IV—THE COLLEGES

COLLEGE OF LETTERS AND SCIENCE

Courses of Study Offered 51
General Regulations 51
The B.A. General Course 67
The Ph.B. General Course 70
Transfer to the School of Education 71
Course in Chemistry 73
Course in Humanities 76
Course in Pharmacy 78
Premedical Curricula 80
School of Commerce 83
School of Journalism 90
Library School 97
School of Music 101
Departments of Instruction 108

COLLEGE OF ENGINEERING

Equipment 240
General Regulations 241
Civil Engineering Course 245
Mechanical Engineering Course 250
Electrical Engineering Course 258
Chemical Engineering Course 263
Mining and Metallurgical Engineering Courses 266
Courses in Engineering and Law 272
Engineering Experiment Station 273
Departments of Instruction 276

COLLEGE OF AGRICULTURE

Equipment 301
Courses of Instruction 302
Extension Courses given on the Campus 304
Agricultural Experiment Station 305
Agricultural Extension Service 305
Curricula in Agriculture 307
Long Course 307
Middle Course 309
Pre-Forestry Training 310
Pre-Veterinary Training 310
Curricula in Home Economics 311
Non-Professional Course 313
Professional Course 315
Departments of Instruction 323

PART V—THE UNDERGRADUATE SCHOOLS

LAW SCHOOL

Admission 358
Pre-legal Studies 360
Requirements for Graduation 363
Courses of Instruction 366

MEDICAL SCHOOL

Admission 368
Medical Courses 369
Departments of Instruction 373

SCHOOL OF NURSING

Admission Requirements 384
Five-Year Combined Courses 384
Graduate Nurse Course 387
Departments of Instruction 388

SCHOOL OF EDUCATION

Admission 390
Academic Teaching Majors and Minors 394
Course in Art Education 407
Course in Physical Education for Men 412
Course in Physical Education for Women 414
Departments of Instruction 422

PART VI—THE GRADUATE SCHOOL

Admission 442
Fellowships and Scholarships 446
Second Degrees 451
Doctor of Philosophy 452

PART VII—EXTENSION DIVISION

Department of Extension Teaching 457
Correspondence Study Courses 458
Milwaukee Center 474
Department of Debating and Public Discussion 476
Department of Public Service 478
Bureau of Lectures and Short Courses 479
Bureau of Visual Instruction 479
Bureau of Economics and Sociology 480
Bureau of Dramatic Activities 480
Department of Business Administration 482
Field Organization 483

PART VIII—OTHER DIVISIONS OF INSTRUCTION

Summer Session 484
Physical Education 487
Men's Department 488
Women's Department 490
Military Science 492

PART IX—ASSOCIATED SCIENTIFIC INSTITUTIONS

Forest Products Laboratory 496
State Laboratory of Hygiene 499
United States Weather Bureau 499
Washburn Observatory 500
Wisconsin Geological and Natural History Survey 501
State of Wisconsin General Hospital 502
Wisconsin Psychiatric Institute 503
State Historical Society 504
Wisconsin Academy of Sciences, Arts, and Letters 505
Museums 506
Arboretum and Wild Life Refuge 506

1938

JANUARY

S	M	T	W	T	F	S
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CALENDAR

ACADEMIC YEAR 1938-39

FIRST SEMESTER

Sept. 9, 10	Friday, Saturday	Examinations for admission
Sept. 14-20	Wednesday-Tuesday	Freshman Period (attendance required)
Sept. 16-20	Friday-Tuesday noon	Registration days for other new students
Sept. 17-20	Saturday-Tuesday noon	Registration days for old students
Sept. 20	Tuesday	Special examinations for removal of conditions
Sept. 21	Wednesday	Instruction begins
Sept. 24	Saturday	Placement examinations for late freshmen and transfers
Oct. 1	Saturday	Foreign language attainment examinations
Nov. 24	Thursday	Thanksgiving Day; legal holiday (one day only)
Dec. 17	Saturday (noon)	Christmas recess commences
Jan. 3	Tuesday (8 a.m.)	Instruction resumed
Jan. 14	Saturday	Examinations for removal of conditions
Jan. 14	Saturday	Foreign language attainment examinations
Jan. 23-Feb. 1	Monday-Wednesday	Final examinations

SECOND SEMESTER

Jan. 30, 31	Monday, Tuesday	Examinations for admission
Feb. 2	Thursday	Registration day for new students
Feb. 4	Saturday	Placement examinations for new students
Feb. 6	Monday	Instruction begins
Feb. 18	Saturday	Examinations for removal of conditions
Feb. 22	Wednesday	Washington's birthday; legal holiday
April 15	Saturday (noon)	Spring recess commences
April 24	Monday (8 a.m.)	Instruction resumed
April 29	Saturday	Examinations for removal of conditions
May 13	Saturday	Foreign language attainment examinations
May 30	Tuesday	Memorial Day; legal holiday
June 5-13	Monday-Tuesday	Final examinations
June 12, 13	Monday, Tuesday	Examinations for admission
June 17	Saturday	Alumni Day
June 18	Sunday	Baccalaureate Day
June 19	Monday	Commencement Day

SUMMER SESSION—1939

June 19	Monday	Law School opens
June 26	Monday	Registration Day, other schools and colleges
June 27	Tuesday	Instruction begins
July 4	Tuesday	Independence Day; legal holiday
August 4	Friday	Six-week session closes
August 25	Friday	Nine-week session and Law School close

CALENDAR

ACADEMIC YEAR 1939-1940

FIRST SEMESTER

Sept. 8, 9	Friday, Saturday	Examinations for admission
Sept. 13-19	Wednesday-Tuesday	Freshman Period (attendance required)
Sept. 15-19	Friday-Tuesday noon	Registration days for other new students
Sept. 16-19	Saturday-Tuesday noon	Registration days for old students
Sept. 19	Tuesday	Special examinations for removal of conditions
Sept. 20	Wednesday	Instruction begins
Sept. 30	Saturday	Foreign language attainment examinations
Nov. 30	Thursday	Thanksgiving Day: legal holiday (one day only)
Dec. 16	Saturday (noon)	Christmas recess commences
Jan. 2	Tuesday (8 a.m.)	Instruction resumed
Jan. 13	Saturday	Examinations for removal of conditions Foreign language attainment examinations
Jan. 22-31	Monday-Wednesday	Final examinations

SECOND SEMESTER

Jan. 29, 30	Monday, Tuesday	Examinations for admission
Feb. 1	Thursday	Registration day for new and re-entered students
Feb. 5	Monday	Instruction begins
Feb. 17	Saturday	Examinatons for removal of conditions
Feb. 22	Thursday	Washington's birthday: legal holiday
April 13	Saturday (noon)	Spring recess commences
April 22	Monday (8 a.m.)	Instruction resumed
April 27	Saturday	Examinations for removal of conditions Foreign language attainment examinations
May 30	Thursday	Memorial Day: legal holiday
June 3-11	Monday-Tuesday	Final examinations
June 10, 11	Monday, Tuesday	Examinations for admission
June 15	Saturday	Alumni Day
June 16	Sunday	Baccalaureate Day
June 17	Monday	Commencement Day

SUMMER SESSION—1940

June 17	Monday	Law School opens
June 24	Monday	Registration Day, other schools and colleges
June 25	Tuesday	Instruction begins
July 4	Thursday	Independence Day: legal holiday
August 2	Friday	Six-week session closes
August 23	Friday	Nine-week session and Law School close

THE REGENTS OF THE UNIVERSITY

	Term expires
State-at-Large—Kenneth Hones, Colfax	1941
State-at-Large—Raymond Richards, Wisconsin Rapids	1942
State-at-Large—Harold M. Wilkie, Madison	1943
State-at-Large—Mrs. John Campbell, Dodgeville	1944
First District—Robert V. Baker, Jr., Kenosha	1943
Second District—Arthur J. Glover, Ft. Atkinson	1943
Third District—Dr. W. Weber Kelly, Green Bay	1944
Fourth District—Judge A. C. Backus, Milwaukee	1939
Fifth District—Edward J. Brown, Milwaukee	1940
Sixth District—Mrs. Jessie C. Combs, Oshkosh	1939
Seventh District—George W. Mead, Wisconsin Rapids	1940
Eighth District—A. M. Miller, Little Chute	1942
Ninth District—Rev. E. B. Christopherson, Pigeon Falls	1944
Tenth District—Clough Gates, Superior	1941

Clarence Addison Dykstra, President of the University, *ex-officio*
John Callahan, State Superintendent of Public Instruction, ex-officio

OFFICERS OF THE REGENTS

Harold M. Wilkie, President
Mrs. Jessie C. Combs, Vice-President
Soloman Levitan, State Treasurer, *ex-officio* Treasurer
A. W. Peterson, Comptroller
M. E. McCaffrey, Secretary

THE BOARD OF VISITORS

Appointed by the Regents

Mrs. Zona Gale Breese, Portage	1938
Fred H. Dorner, Milwaukee	1940
A. D. Gillett, Eveleth, Minn.	1941

Appointed by the Alumni

Mrs. Carl A. Johnson, Madison	1937
B. A. Kiekhofer, Milwaukee	1938
Marcus A. Jacobson, Waukesha	1939
Byron H. Stebbins, Madison	1939
Ralph Balliette, Platteville	1940
Marc A. Law, Chicago	1940

Appointed by the Governor

Mrs. Annette Roberts, Milwaukee	1935
Mrs. Julia A. Schnetz, Racine	1941
Dr. E. L. Schroeder, Shawano	1942

ADMINISTRATIVE OFFICERS

GENERAL

PRESIDENT

Clarence A. Dykstra, *President*
Julia M. Wilkinson, *Executive Secretary to the President*

DEAN OF MEN

Scott H. Goodnight, *Dean of Men*
Howard R. Cottam, *Assistant to the Dean*

DEAN OF WOMEN

Mrs. Louise Troxell Greeley, *Dean*
Susan B. Davis, *Assistant Dean*
Helen Kayser, *Assistant to the Dean*
Zoe B. Bayliss, *Assistant to the Dean*

SECRETARY OF THE FACULTY

Charles A. Smith, *Secretary of the Faculty*
Alden W. White, *Assistant Secretary of the Faculty*

REGISTRAR

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

BUREAU OF GUIDANCE AND RECORDS

Curtis Merriman, *Executive Director*
F. O. Holt, *Director of School Relations*
V. A. C. Henmon, *Director of Educational Guidance*
Alanson H. Edgerton, *Director of Vocational Guidance*

UNIVERSITY LIBRARY

Gilbert H. Doane, *Director of University Libraries*
Clarence S. Hean, *Librarian, Agricultural Library*
Frederick E. Volk, *Librarian, Engineering Library*
Philip G. Marshall, *Librarian, Law Library*
Gladys Ramsey, *Librarian, Medical Library*

DEPARTMENT OF MILITARY SCIENCE

William G. Weaver, *Lieutenant Colonel of Infantry, U. S. A., Commandant*

DEPARTMENT OF STUDENT HEALTH

Llewellyn R. Cole, *Director*

PHYSICAL EDUCATION

G. S. Lowman, *Director of Physical Education—Men*
Blanche M. Trilling, *Director of Physical Education—Women*

LOANS AND SCHOLARSHIPS—Curtis Merriman, *Chairman*

STUDENT EMPLOYMENT BUREAU—Mrs. V. W. Meloche, *Manager*

DORMITORIES AND COMMONS—Donald L. Halverson, *Director*

WISCONSIN UNION—Porter Butts, *House Director*

EDUCATIONAL

COLLEGE OF LETTERS AND SCIENCE
- George C. Sellery, *Dean*
- Harry Glicksman, *Junior Dean*
- Chester H. Ruedisili, *Assistant to the Junior Dean*
- Course in Chemistry—J. Howard Mathews, *Director*
- Course in Classical Humanities—Robert L. Reynolds, *Chairman*
- Course in Humanities—Robert L. Reynolds, *Chairman*
- Course in Pharmacy—Arthur H. Uhl, *Director*

SCHOOL OF COMMERCE—Fayette H. Elwell, *Director*

SCHOOL OF JOURNALISM—Grant M. Hyde, *Director*

LIBRARY SCHOOL
- Clarence B. Lester, *Director*

SCHOOL OF MUSIC—C. E. Bricken, *Director*

COLLEGE OF ENGINEERING
- F. Ellis Johnson, *Dean*
- Adam V. Millar, *Assistant Dean*
- Course in Chemical Engineering—Otto L. Kowalke, *Chairman*
- Course in Civil Engineering—Leslie F. Van Hagan, *Chairman*
- Course in Electrical Engineering—Edward Bennett, *Chairman*
- Course in Mechanical Engineering—Gustus L. Larson, *Chairman*
- Course in Mining and Metallurgy—E. R. Shorey, *Chairman*

COLLEGE OF AGRICULTURE
- Chris L. Christensen, *Dean*
- Ira L. Baldwin, *Assistant Dean*
- Course in Home Economics—Abby L. Marlatt, *Director*

LAW SCHOOL—Lloyd K. Garrison, *Dean*

MEDICAL SCHOOL
- William S. Middleton, *Dean*
- Walter J. Meek, *Assistant Dean*

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

SCHOOL OF EDUCATION—C. J. Anderson, *Dean*
- Course in Art Education—William H. Varnum, *Chairman*
- Course in Physical Education and Athletic Coaching for Men—Guy S. Lowman, *Chairman*
- Course in Physical Education for Women—Blanche M. Trilling, *Chairman*
- University High School—Gordon N. Mackenzie, *Principal*

GRADUATE SCHOOL—Edwin B. Fred, *Dean*

EXTENSION DIVISION—Frank O. Holt, *Dean*
- John L. Bergstresser, *Assistant Dean*

SUMMER SESSION—Scott H. Goodnight, *Dean*
- Howard R. Cottam, *Assistant to the Dean*

BUSINESS

BUSINESS OFFICES

MAURICE E. MCCAFFREY, *Secretary of the Regents*
ALFRED W. PETERSON, *Comptroller*
NEIL G. CAFFERTY, *Accountant*
DONALD L. HALVERSON, *Director of Dormitories and Commons*
WILLIAM H. NEGLEY, *University Editor*

PHYSICAL PLANT

ALBERT F. GALLISTEL, *Superintendent of Buildings and Grounds*
GUSTUS L. LARSON, *Consulting Mechanical Engineer*
WILLIAM S. KINNE, *Consulting Structural Engineer*
JOHN J. NOVOTNY, *Power Plant Engineer*
FRED R. CUTCHEON, *Electrical Engineer*

STANDING COMMITTEES OF THE UNIVERSITY FACULTY

1937-38

The President is, ex-officio, a member of all standing committees, and the Secretary of the Faculty of each administrative committee.

ADMINISTRATIVE—The President, Deans, and Secretary of the Faculty.

APPEALS—Professor Kommers, chairman; Professors Boegholt, Gillin, H. L. Hall, and Sarles. In an advisory capacity only: The Dean of Men, the Dean of Women, the chairman of the committee in which the case originated, the Dean of the College concerned or his representative, and the student's adviser.

ATHLETIC BOARD—Dr. Lorenz, chairman; Professors H. C. Bradley, Rundell, Witte; Alumni Members: Dr. James P. Dean and Howard I. Potter; Charles Fenske, President of Student Athletic Board.

AUDITORIUMS—Professor C. A. Smith, chairman; Deans Baldwin and Goodnight; Professors Butts, Swinney, Wagner and Weaver, and the Business Manager.

CARDINAL ADVISORY—Professor Hyde, chairman; Professors Fellows and Fox.

CATALOG—Professor C. A. Smith, chairman; Deans Baldwin and Millar; Registrar Merriman.

COURSES—(elected) Professor Zdanowicz, chairman; Professors Jackson, Meek, Noland, Perlman, Ragsdale, Rice, Van Hagan, and Wahlin.

DISCIPLINE—Professor Fox, chairman; the deans in cases relating to students in their respective colleges; Professors Cool, Ingersoll, Meek, W. Bayard Taylor; the student's adviser, *ex officio* and without vote; student members, Elizabeth Teckemeyer, Robert G. Gehrz.

FACULTY CLUB—Dean Baldwin, chairman; Dean Holt; Professors Bleckwenn, Fowlkes, Fox, Rundell, Trewartha, Truog, Helen White; and the Business Manager.

FRESHMAN—Dean Glicksman, chairman; Deans Baldwin, Davis, and Millar; Professor Robert Francis.

FRESHMAN PERIOD—Registrar Merriman, chairman; Deans Baldwin, Davis, Greeley, Glicksman, Meek, Millar; Professors Edgerton and Henmon.

GRADUATE SCHOOL—Dean Fred, general chairman.

Administrative: Professor Knaplund, chairman; Dean C. J. Anderson; Professors H. H. Clark, Gaus, Keitt, and Rundell.

Research: (Section A) Professors E. B. Hart, chairman; Professors Hougen, Meyer, and Wahlin.

(Section B) Professor Perlman, chairman; Professors Hughes, McCormick, and Twaddell.

Scholarships and Fellowships: Professor W. H. Peterson, chairman; Professors Corey, Gilbert, Post, Roark, and Young.

Publications: Professor Hicks, chairman; Professors Emmons, Doane, Hanley, Hastings, and Kirk.

HIGH SCHOOL RELATIONS—Professor Corey, chairman; Deans Holt and Millar; Professors Agard, I. C. Davis, H. P. Evans, Fassett, Hesseltine, Iltis, Kivlin, Floyd, Pooley, Roeseler, C. A. Smith and Wallerstein.

HONORARY DEGREES—Professor Weaver, chairman; The Deans, ex officio; Professors J. S. Evans, E. B. Hart, Kiekhofer, and C. K. Leith.

LECTURES AND CONVOCATIONS—Professor Gaines Post, chairman; deans of the colleges, *ex-officio;* Professors Ayres, Noland, Rogers, Stedman, and C. W. Thomas.

LIBRARY—The President and the University Librarian; (elected) Professor P. F. Clark, chairman; Professors Bohstedt, Knaplund, J. R. Price, Schuette, and Helen White.

LOANS AND UNDERGRADUATE SCHOLARSHIPS—Registrar Merriman, chairman; Deans Baldwin, Goodnight and Greeley; Professors Borchers, W. E. Sullivan, and Volk; Mrs. Meloche; W. J. Harris, Secretary.

NOMINATIONS—(elected) Professor L. J. Cole, chairman; Professors R. A. Brown and Ingraham.

PUBLIC FUNCTIONS—Professor Ewbank, chairman; Professors Gordon, Graber, Kasten, Krauskopf, G. L. Larson, and Withey; Mr. Gallistel; Mr. White, Secretary.

PUBLIC RELATIONS—Dean Holt, chairman; Professors Dalley, J. S. Evans, E. Haugen, Hopkins, Kowalke, and Perlman; Mr. Foss and deans of the colleges.

REGENT-FACULTY CONFERENCE—The President of the University, *ex-officio*; Regents A. C. Backus, Baker, Callahan, Combs, Gates, Glover, and Wilkie. Faculty (elected): Prof. Rundell, chairman.

Business Committee: Professor Withey, chairman; Professors Daniels, Perlman, Sarles, and Rundell.

Educational Committee: Dean Sellery, chairman; Deans Baldwin and Fred; Professors Gilbert and Twaddell.

Student Life and General Welfare: Dr. Sevringhaus, chairman; Professors Dvorak, Hastings, Rundell; and Paul Jones, Instructor.

RELATIONS WITH COLLEGES OF STATE—Dean Anderson, chairman; Deans Baldwin, Fred, Holt, and Sellery; Professor C. A. Smith.

ROOMS AND TIME-TABLE—Professor C. A. Smith, chairman; Deans Baldwin and Meek; Professors Coon, R. H. Denniston, Gillen, H. L. Hall, Krauskopf, March, Ragatz, Roebuck, Watson, and Whitaker; Miss Bridgman.

STUDENT CONDUCT—Professor Kivlin, chairman; Professors Washburne, Weston, Kasten, O. A. Hougen; the deans of the colleges, *ex-officio*.

STUDENT LIFE AND INTERESTS—Dean Goodnight, chairman; Dean Greeley, associate chairman; Dean Charles Dollard secretary.

Living Conditions and Hygiene: Professor Hastings, chairman; Dr. Llewellyn K. Cole, Professors Meloche, Beuscher, and Wallerstein; Housing Assistants Miss Bayliss and Mrs. Stemm; student member, Hollis W. Peter.

Musical Organizations: Professor Irene B. Eastman, chairman; Professors Gordon and Iltis; student member, Jane Haslanger.

Forensics and Dramatics: Professor Weaver, chairman; Professors Lane and Herriott; student member, Byron L. Johnson.

Publications: Professor Thayer, chairman; Professors Aurner and Sumner; student member, Carleton Brechler.

Society, Fraternities and Politics: Professor C. E. Allen, chairman; Professors Fellows and Uhl; Assistant Dean Miss Kayser; student member, William L. Thorkelson.

UNIVERSITY—(elected) Professor Daniels, chairman; Professors Hicks, Keitt, Reese, Roark and Trumbower.

INSTRUCTIONAL AND ADMINISTRATIVE STAFF 1937-38

I indicates first semester; II, second semester

UNIVERSITY FACULTY

AAMODT, OLAF SVERRE, *Ph.D.*, Professor of Agronomy
ABRY, CECELIA FRANCES, *M.S.*, Assistant Professor of Home Economics
ADKINS, HOMER BURTON, *Ph.D.*, Professor of Chemistry
AGARD, WALTER RAYMOND, *B.Litt.*, Professor of Greek
AHLGREN, HENRY LAWRENCE, *Ph.D.*, Assistant Professor of Agronomy
ALBERT, ARTHUR ROBERT, *B.S.*, Assistant Professor of Soils; in charge of Hancock and Coddington Branch Experiment Stations
ALLEN, CHARLES ELMER, *Ph.D.*, Professor of Botany
ALLEN, CHESTER, Director of Field Organization, Extension Division
ALLEN, HELEN LOUISE, *M.A.*, Assistant Professor of Home Economics
ALLEN, KATHARINE, *Ph.D.*, Emeritus Assistant Professor of Latin
ALTPETER, ROGER JAMES, *Ph.D.*, Assistant Professor of Chemical Engineering
AMUNDSON, GENEVA LUCILLE, *B.S.*, Assistant State Leader of Boys' and Girls' Clubs
AMUNDSON, ROBERT ANDREW, *B.S.*, District Extension Leader, Agricultural Extension
ANDERSON, C. J., *Ph.M.*, Dean of the School of Education; Professor of Education
ANDERSON, DON SHERMAN, *B.S.*, Associate Professor of Agricultural Economics
ANNEN, MRS. HELEN WANN, *B.A.*, *B.F.A.*, *M.S.*, Assistant Profesor of Art Education
ANNIN, GERALD EVERETT, *B.S.*, Assistant Professor of Poultry Husbandry
APPEL, LIVIA, *B.A.*, Managing Editor, University of Wisconsin Press
AURNER, ROBERT RAY, *Ph.D.*, Professor of Business Administration
AUST, FRANZ AUGUST, *M.S.*, *M.L.D.*, Associate Professor of Horticulture
AVEY, HARRY THOMPSON, *M.E.*, Associate Professor of Mechanical Engineering, Milwaukee Extension Center
AYRES, EDMUND DALE, *M.S.*, Associate Professor of Engineering Economics

BABCOCK, MARY RUTH, *M.A.*, Assistant Professor of English, Milwaukee Extension Center
BACKUS, MYRON PORT, *Ph.D.*, Assistant Professor of Botany
BAIER, JOSEPH GEORGE, JR., *Ph.D.*, Assistant Professor of Zoology, Milwaukee Extension Center
BAKKEN, HENRY HARRISON, *M.A.*, Associate Professor of Agricultural Economics
BALDWIN, IRA LAWRENCE, *Ph.D.*, Assistant Dean, College of Agriculture; Professor of Agricultural Bacteriology
BALDWIN, LEO STARR, *B.A.*, *B.S.*, Assistant Professor of Drawing, Milwaukee Extension Center
BANDY, WILLIAM THOMAS, *Ph.D.*, Lecturer in French
BARKER, GEORGE JOHN, *B.S.*, *M.E.*, Assistant Professor of Mining and Metallurgy
BARR, ARVIL SYLVESTER, *Ph.D.*, Professor of Education
BARTON, JOHN RECTOR *B.A.*, *B.D.*, Assistant Professor of Rural Sociology
BASCOM, LELIA, *B.L.*, *M.A.*, Associate Professor of English, Extension Division

BASSETT, GLADYS BARTON, *M.A.*, Associate Professor of Physical Education
BAST, THEODORE HIERONYMUS, *Ph.D.*, Professor of Anatomy
BATEMAN, ERNEST, *Ph.B.*, Lecturer in Forest Products (Deceased December 10, 1937)
BEACH, BURR ABRAHAM, *D.V.M.*, Professor of Veterinary Science
BEATTY, ARTHUR, *Ph.D.*, Professor of English (also Extension Division) (On leave, II)
BECKER, HOWARD (PAUL), *Ph.D.*, Professor of Sociology
BENEDICT, REGINALD RALPH, *M.S.*, Assistant Professor of Electrical Engineering
BENNETT, EDWARD, *E.E.*, Professor of Electrical Engineering
BENTLEY, JOHN EDWARD, *B.S.*, *M.D.*, Assistant Professor of Clinical Medicine
BERGSTRESSER, JOHN LOT, *Ph.D.*, Assistant Dean of the Extension Division
BERKOWITZ, HYMAN CHONON, *Ph.D.*, Professor of Spanish
BEUSCHER, JACOB HENRY, *B.A.*, *LL.B.*, *J.S.D.*, Associate Professor of Law
BEWICK, THOMAS LYMAN, *Ph.M.*, State Leader of Boys' and Girls' Clubs
BIRGE, EDWARD ASAHEL, *Ph.D.*, *LL.D.*, *Sc.D.*, President Emeritus
BIRKENMAJER, JOSEF ANTHONY, *Ph.D.*, Acting Professor of Polish
BIRT, CHARLES J., *LL.B.*, Lecturer in Sociology
BLECKWENN, WILLIAM JEFFERSON, *B.S.*, *M.D.*, Professor of Neuropsychiatry; Assistant Director, Wisconsin Psychiatric Institute
BOARDMAN, WILLIAM WADE, *LL.B.*, Lecturer in Law
BOEGHOLT, CARL MÖLLER, *Ph.D.*, Associate Professor of Philosophy
BOESEL, FRANK TILDEN, *Ph.B.*, *LL.B.*, Lecturer in Law
BOHSTEDT, GUSTAV, *Ph.D.*, Professor of Animal Husbandry
BORCHERS, GLADYS LOUISE, *Ph.D.*, Associate Professor of Speech
BRADLEY, HAROLD CORNELIUS, *Ph.D.*, Professor of Physiological Chemistry
BRADLEY, ROBERT FOSTER, *Ph.D.*, Assistant Professor of French (On leave, 1937-38)
BRADY, MARY AGNES, *B.S.*, Extension Nutritionist in Home Economics
BRANDEIS, ELIZABETH (MRS. P. A. RAUSHENBUSH), *Ph.D.*, Lecturer in Economics
BRANN, JOHN WILLIAM, *M.S.*, Assistant Professor of Horticulture and Plant Pathology
BRAY, MARK WILDER, *M.S.*, Lecturer in Forest Products
BREIT, GREGORY, *Ph.D.*, Professor of Physics
BRIGGS, GEORGE MCSPADDEN, *B.A.*, Professor of Agronomy; Associate Director, Short Course in Agriculture
BRINK, ROYAL ALEXANDER, *M.S.*, *Sc.D.*, Professor of Genetics
BROWN, CHARLES EDWARD, *M.A.*, Lecturer in Art Education
BROWN, FREEMAN HARDING, *B.S.*, Assistant Chief, Bureau of Visual Instruction, Extension Division
BROWN, GEORGE VAN INGEN, *D.D.S.*, *M.D.*, *F.A.C.S.*, Emeritus Professor of Oral and Plastic Surgery
BROWN, RAY ANDREWS, *B.A.*, *LL.B.*, *S.J.D.*, Professor of Law
BROWNE, FREDERICK LINCOLN, *Ph.D.*, Lecturer in Forest Products
BRUMM, LESTER FRANK, *B.A.*, *M.S.*, Associate Professor of Accounting; Head of the Department of Business Administration, Extension and Milwaukee Extension Center
BRUNS, FRIEDRICH, *Ph.D.*, Professor of German
BRYAN, GEORGE SMITH, *Ph.D.*, Professor of Botany
BUCK, PHILO MELVIN, JR., *M.A.*, *Litt.D.*, Professor of Comparative Literature
BUERKI, ROBIN CARL, *B.S.*, *M.D.*, Superintendent of the Wisconsin General Hospital and Wisconsin Orthopedic Hospital; Executive Secretary to the Dean of the Medical School (On leave, beg. April 1, 1938)
BUNGE, HELEN LATHROP, *M.A.*, *R.N.*, Assistant Professor of Nursing

BUNN, CHARLES, *B.A., LL.B.*,, Professor of Law (On leave, 1937-38)
BUNTING, CHARLES HENRY, *B.S., M.D.*, Professor of Pathology
BURKE, LAURANCE CHARLES, *B.L.*, Assistant Librarian
BURLEIGH, CECIL EDWARD, Professor of Music
BURNS, ROBERT EMMETT, *B.S., M.D.*, Professor of Orthopedic Surgery
BUTTS, PORTER FREEMAN, *M.A.*, House Director, Wisconsin Union; Assistant Professor of Social Education

CALDWELL, RUTH (MRS. M. A. FOSTER), *B.A., M.D.*, Assistant Professor of Clinical Medicine
CAMPBELL, RALPH EMERSON, *B.S., M.D., F.A.C.S.*, Associate Professor of Obstetrics and Gynecology
CAMPBELL, RICHARD VALENTINE, *B.A., LL.B., J.S.D.*, Professor of Law
CAMPBELL, RUTH, *M.A.*, Hostess of Chadbourne Hall
CARNS, MARIE LOUISE, *M.A., M.D.*, Assistant Professor of Medicine
CARPENTER, MRS. LOUISE LOCKWOOD, *B.M.*, Associate Professor of Music
CASIDA, LESTER EARL, *Ph.D.*, Assistant Professor of Genetics
CASON, HULSEY, *Ph.D.*, Professor of Psychology
CASTRO, AMERICO, *Ph.D., Litt.D.*, Visiting Professor of Spanish
CHAPMAN, CLINTON JOSEPH, *B.S.*, Professor of Soils
CHASE, SAMUEL HAMILTON, *D.D.S., F.A.C.D.*, Lecturer in Dental Hygiene
CHASE, WAYLAND JOHNSON, *M.A.*, Emeritus Professor of Education
CHEYDLEUR, FREDERIC DANIEL, *Ph.D.*, Professor of French
CHRISTENSEN, CHRISTIAN LAURITHS, *B.S.*, Dean of the College of Agriculture; Director of Agricultural Extension Service
CLARK, CHARLOTTE ELLEN, *B.S.*, Assistant Professor of Home Economics Extension
CLARK, HARRY HAYDEN, *M.A.*, Professor of English
CLARK, PAUL FRANKLIN, *Ph.D.*, Professor of Medical Bacteriology
CLARK WARREN WILLIAM, *M.S.*, Professor of Agricultural Extension; Associate Director of Agricultural Extension
CLARK, (WILLIAM) NOBLE, *M.S.*, Assistant Director, Agricultural Experiment Station
CLARKE, HELEN ISABEL, *M.A.*, Assistant Professor of Sociology
COLBERT, ROY JEFFERSON, *Ph.D.*, Associate Professor of Economics and Sociology, Extension Division; Chief of the Bureau of Economics and Sociology, Extension Division
COLE, LEON JACOB, *Ph.D.*, Professor of Genetics
COLE, LLEWELLYN RATHBUN, *B.A., M.D.*, Director, Department of Student Health; Associate Professor of Clinical Medicine
COLLENTINE, ARTHUR OWEN, *B.S.*, Assistant Professor of Animal Husbandry
COMMONS, JOHN ROGERS, *M.A., LL.D.*, Emeritus Professor of Economics; Lecturer in Economics—I
COOL, CHARLES DEAN, *Ph.D.*, Professor of Spanish
COON, LELAND AVERY, *M.A.*, Professor of Music
COREY, STEPHEN MAXWELL, *Ph.D.*, Associate Professor of Education; Acting Principal, Wisconsin High School
COTTINGHAM, WILLARD SHERWIN, *M.S., C.E.*, Assistant Professor of Structural Engineering
COWLES, MAY LOUISE, *Ph.D.*, Assistant Professor of Home Economics
CRAMER, ALBERT JULIUS, *B.S.*, Assistant Professor of Animal Husbandry
CRANE, FRANK DOUGALL, *Ph.D.*, Assistant Professor of Comparative Literature, Extension Division

CREAMER, JOHN JOSEPH, *B.A., LL.B.*, Associate Professor of English, Milwaukee Extension Center
CRONIN, KATHERINE LUCILLE, *M.A.*, Associate Professor of Physical Education
CURRAN, CARLETON EDGAR, *Ph.D.*, Lecturer in Forest Products

DALLEY, ORIEN EMEAL, *M.M.*, Director of the Music Clinic; Assistant Professor of Music
DANIELS, FARRINGTON, *Ph.D.*, Professor of Chemistry
DARLOW, ALBERT EDWARD, *M.S.*, Associate Professor of Animal Husbandry
DAVIS, FREDERICK ALLISON, *M.D.*, Professor of Ophthalmology
DAVIS, IRA CLEVELAND, *M.A.*, Associate Professor in the Teaching of Science
DAVIS, MRS. WINIFRED LEMON, *B.S., M.A.*, Assistant Professor of Library Science
DEAN, CHARLES LYMAN, *B.S.*, Assistant Professor of Mechanical Engineering, Extension Division
DELWICHE, EDMOND JOSEPH, *M.S.*, Professor of Agronomy; in charge of Ashland, Spooner, and Peninsular Branch Experiment Stations
DENNE, HELEN IRENE, *B.A., R.N.*, Director, School of Nursing; Professor of Nursing (Resigned November 1, 1937)
DENNISTON, MRS. HELEN DOBSON, *M.D.*, Associate Professor of Physical Education
DENNISTON, ROLLIN HENRY, *Ph.D.*, Assistant Professor of Botany
DICKSON, JAMES GEERE, *Ph.D.*, Professor of Plant Pathology
DILLON, MYLES, *Ph.D.*, Professor of Gaelic and Irish History and Literature
DOANE, GILBERT HARRY, *B.A.*, Director of University Libraries
DOERING, HELMUTH REINHOLD, *B.A., M.B.A.*, Assistant Professor of Business Administration, Extension Division and Milwaukee Extension Center
DOOLAN, ANTOINETTE MARIE, *B.S., R.N.*, Assistant Professor of Dietetics; Chief Dietitian, Wisconsin General Hospital
DORRANS, JAMES MORGAN, Superintendent, Engineering Shop Laboratories; Assistant Professor of Mechanical Practice
DOWNER, GEORGE FORD, *B.L.*, Associate Professor of Physical Education; Publicity Director
DRAKE, LEWIS ETHELBERT, *Ph.D.*, Assistant Professor of Psychology, Extension Division and Milwaukee Extension Center
DUDLEY, WILLIAM HENRY, *B.A.*, Assistant Librarian
DUFFEE, FLOYD WALDO, *B.S.*, Professor of Agricultural Engineering
DUGGAR, BENJAMIN MINGE, *Ph.D.*, Professor of Physiological and Applied Botany
DURAND, LOYAL, JR., *Ph.D.*, Assistant Professor of Geography
DVORAK, RAYMOND FRANCIS, *B.S., B.M.*, Assistant Professor of Music
DYKSTRA, CLARENCE ADDISON, *B.A., LL.D., L.H.D., Litt.D.*, President

EASTMAN, IRENE BELLE, *B.M.*, Assistant Professor of Music
EASUM, CHESTER VERNE, *Ph.D.*, Associate Professor of History
EBLING, WALTER HENRY, *Ph.D.*, Assistant Professor of Agricultural Economics—I
ECCLES, MARK, *Ph.D.*, Assistant Professor of English
EDGERTON, ALANSON HARRISON, *Ph.D.*, Professor of Guidance and Director of Vocational Guidance
EDSALL, BESSIE EVA, *Ph.M.*, Assistant Professor of History, Extension Division
ELLIOTT, BENJAMIN GEORGE, *M.S., M.E.*, Professor of Mechanical Engineering, Extension Division and College of Engineering
ELLIS, IVAN GEORGE, *B.S., M.D.*, Lecturer in Radiology
ELSOM, JAMES CLAUDE, *M.D.*, Emeritus Professor of Physical Education and Physical Therapy
ELVEHJEM, CONRAD ARNOLD, *Ph.D.*, Professor of Agricultural Chemistry

ELWELL, FAYETTE HERBERT, *B.A., C.P.A.*, Director, School of Commerce; Professor of Accounting
EMMONS, RICHARD CONRAD, *Ph.D.*, Professor of Geology
ENGEL, HAROLD ANTON, *M.A.*, Lecturer in Education
ENGLISH, HENRY ROWLAND, *M.A.*, Professor of Business Administration
ERDMANN, HERBERT HENSLEY, *B.S.*, Assistant Professor of Agricultural Economics
ERNST, ADOLPHINE BIANCA, *Ph.D.*, Associate Professor of German, Extension Division
EVANS, HERBERT PULSE, *Ph.D.*, Assistant Professor of Mathematics
EVANS, JOSEPH SPRAGG, *B.A., M.D.*, Professor of Medicine
EVANS, RICHARD IRVING, *Ph.D.*, Assistant Professor of Botany
EWBANK, HENRY LEE, *Ph.D.*, Associate Professor of Speech
EYSTER, JOHN AUGUSTINE ENGLISH, *B.S., M.D.*, Professor of Physiology

FARGO, JOHN MERRILL, *M.S.*, Assistant Professor of Animal Husbandry
FARRAR, CLAYTON L., *Ph.D.*, Assistant Professor of Economic Entomology (beg. April 12, 1938)
FASSETT, NORMAN CARTER, *Ph.D.*, Associate Professor of Botany
FEINSINGER, NATHAN PAUL, *B.A., J.D.*, Professor of Law
FELLOWS, DONALD ROSS, *M.A.*, Associate Professor of Business Administration
FINCH, VERNOR CLIFFORD, *Ph.D.*, Professor of Geography
FISCHER, RICHARD, *Ph.D.*, Professor of Chemistry
FISK, EMMA LUELLA, *Ph.D.*, Associate Professor of Botany
FLETCHER, LILA BELLE, *R.N.*, Associate Professor of Nursing; Superintendent of Nurses—II
FLOYD, OLIVER REED, *Ph.D.*, Assistant Professor of Education, School of Education and Extension Division
FLUKE, CHARLES LEWIS, JR., *Ph.D.*, Professor of Economic Entomology
FOERSTER, HARRY ROBERT, *B.S., M.D.*, Assistant Professor of Dermatology
FOERSTER, OTTO HOTTINGER, *M.D.*, Professor of Dermatology
FOLLETT, ALBERT OSCAR, *B.S.*, Assistant Professor, Farm and Dairy Records Office
FOSTER, HAROLD EMERSON, *Ph.B.*, Assistant Professor of Physical Education
FOWLER, RUSSELL WINSLOW, *M.S.*, Assistant Professor of Drawing, Extension Division
FOWLKES, JOHN GUY, *Ph.D.*, Professor of Education
FOX, PHILIP GORDER, *M.A.*, Associate Professor of Business Administration
FRANCIS, ROBERT J., *M.A.*, Assistant Professor of Physical Education
FRAZIER, WILLIAM CARROLL, *Ph.D.*, Professor of Agricultural Bacteriology
FRED, EDWIN BROUN, *Ph.D.*, Dean of the Graduate School; Professor of Agricultural Bacteriology
FRIES, HORACE SNYDER, *Ph.D.*, Lecturer in Philosophy; Assistant to the Dean of the Graduate School
FROKER, RUDOLPH KNUGAARD, *M.S.*, Associate Professor of Agricultural Economics
FROST, WILLIAM DODGE, *Ph.D., Dr.P.H.*, Professor of Agricultural Bacteriology
FULCHER, PAUL MILTON, *Ph.D.*, Associate Professor of English
FULLER, JAMES GARFIELD, *M.S.*, Professor of Animal Husbandry
FULLER, WILLIAM JOHN, *B.A.*, Professor of Civil and Structural Engineering, Milwaukee Extension Center

GALE, JOSEPH WASSON, *M.D.*, Associate Professor of Surgery
GANGSTAD, IDA MARIE, *B.A.*, Assistant Professor of Library Methods, Extension Division; Assistant Professor of Debating and Public Discussion, Extension Division

GARNETT, ARTHUR CAMPBELL, *M.A., Litt.D.*, Associate Professor of Philosophy
GARRISON, LLOYD KIRKHAM, *B.A., LL.B.*, Dean of the Law School; Professor of Law
GAUS, JOHN MERRIMAN, *Ph.D.*, Professor of Political Science (On leave II)
GAUSEWITZ, ALFRED LEROY, *B.A., LL.M.*, Professor of Law
GAY, LUCY MARIA, *B.L.*, Emeritus Associate Professor of French
GEIST, FREDERICK DENKMAR, *M.D.*, Associate Professor of Anatomy
GERRY, ELOISE, *Ph.D.*, Lecturer in Forest Products
GIBSON, JOHN CURRIE, *B.A., C.P.A.*, Associate Professor of Accounting
GIESE, WILLIAM FREDERICK, *M.A., Dr.Litt.*, Emeritus Professor of French
GILBERT, EDWARD MARTINIUS, Ph.D., Professor of Botany and Plant Pathology
GILLEN, CHARLES FREDERICK, *Ph.D.*, Associate Professor of French
GILLIN, JOHN LEWIS, *Ph.D., LL.D.*, Professor of Sociology
GLAESER, MARTIN GUSTAV, *Ph.D.*, Professor of Economics and Commerce (On leave I)
GLASSCO, ROY THOMAS, *B.S.*, County Agricultural Representative. Rock County
GLASSOW, RUTH BERTHA, *M.A.*, Associate Professor of Physical Education (On leave II)
GLICKSMAN, HARRY, *LL.B., Ph.D.*, Junior Dean, College of Letters and Science; Lecturer in English
GOLDENWEISER, ALEXANDER, *Ph.D.*, Acting Professor of Sociology
GONCE, JOHN EUGENE, JR., *M.D.*, Professor of Pediatrics
GOODNIGHT, SCOTT HOLLAND, *Ph.D., LL.D.*, Dean of Men; Dean of the Summer Session
GORDON, EDGAR BERNARD, Professor of Music
GOWER, CHARLOTTE DAY, *Ph.D.*, Assistant Professor of Anthropology
GRABER, LAURENCE FREDERICK, *Ph.D.*, Professor of Agronomy
GRAFF, MARSHALL CONANT, *M.A.*, Assistant Professor and Field Representative, Extension Division
GRAUL, EDWARD JOHN, *M.S.*, Professor of Soils
GREELEY, MRS. LOUISE TROXELL, *B.S., B.A.*, Dean of Women
GROVER, ARLENE EDNA, *B.L.*, Assistant Librarian
GROVES, HAROLD MARTIN, *Ph.D.*, Professor of Economics
GUIOT, GERMAINE GLADYS, *M.S.*, Lecturer in Physical Education—II
GUYER, MICHAEL FREDERIC, *Ph.D., LL.D.*, Professor of Zoology
GUYLES, CALLA ARATHUSA, *Ph.B.*, Assistant Professor in the Teaching of Latin

HAAS, ALFRED JOHN, Executive Secretary, College of Agriculture
HADLEY, FREDERICK BROWN, *D.V.M.*, Professor of Veterinary Science
HAGEN, OSKAR FRANK LEONARD, *Ph.D., F.R.S.A.*, Professor of History and Criticism of Art
HALE, WEALTHY MARIA, *B.S.*, Extension Specialist in House Management, Agricultural Extension
HALL, HOWARD LEWIS, *B.A., LL.B.*, Professor of Law
HALL, ISAAC FULTS, *Ph.D.*, Associate Professor of Agricultural Economics (On leave I)
HALL, NORRIS FOLGER, *Ph.D.*, Professor of Chemistry (On leave II)
HALPIN, JAMES GARFIELD, *B.S.*, Professor of Poultry Husbandry
HALVERSON, DONALD LITTLEJOHN, *M.A.*, Director of Dormitories and Commons; Professor of Institutional Management
HANLEY, MILES LAWRENCE, *M.A.*, Associate Professor of English
HANSON, JOHN ELMORE, *Ph.B.*, Chief, Bureau of Visual Instruction, Extension Division

HARLOW, HARRY FREDERICK, *Ph.D.*, Assistant Professor of Psychology
HARRIS, ELWIN ELMER, *Ph.D.*, Lecturer in Forest Products
HARRIS, JOHN WARTON, *M.A., M.D.*, Professor of Obstetrics and Gynecology
HARRIS, JULIAN EARLE, *Ph.D.*, Assistant Professor of French
HART, EDWIN BRET, *B.S.*, Professor of Agricultural Chemistry
HART, WALTER WILSON, *B.A.*, Lecturer in the Teaching of Mathematics
HASTINGS, EDWIN GEORGE, *M.S.*, Professor of Agricultural Bacteriology
HAUGEN, EINAR INGVALD, *Ph.D.*, Thompson Associate Professor of Scandinavian Languages
HAWLEY, LEE FRED, *Ph.D.*, Lecturer in Forest Products
HAYES. JOHN BARRY, *B.S.*, Professor of Poultry Husbandry
HAZELTINE, MARY EMOGENE, *B.S.*, Principal, Library School; Associate Professor of Bibliography
H'DOUBLER, MARGARET NEWELL (MRS. WAYNE CLAXTON), *M.A.*, Associate Professor of Physical Education
HEAN, CLARENCE SCOTT, *B.A.*, Librarian, College of Agriculture
HEIRONIMUS, JOHN PAUL, *Ph.D.*, Assistant Professor of Classics
HELLEBRANDT, FRANCES ANNA, *B.S., M.D.*, Associate Professor of Physiology
HENDERSON, RUTH ADELE, *B.S., M.A.*, Assistant Professor in the Teaching of Home Economics
HENMON, VIVIAN ALLEN CHARLES, *Ph.D.*, Professor of Psychology; Director of Educational Guidance
HENSEY, IRENE ANITA, *M.S.*, Assistant Professor of Accounting
HERRICK, CHESTER ALBERN, *Sc.D.*, Associate Professor of Zoology and Veterinary Science
HERRIN, RAYMOND CLYDE, *Ph.D., M.D.*, Associate Professor of Physiology
HERRIOTT, JAMES HOMER, *Ph.D.*, Assistant Professor of Spanish
HESSELTINE, WILLIAM BEST, *Ph.D.*, Associate Professor of History
HIBBARD, BENJAMIN HORACE, *Ph.D.*, Professor of Agricultural Economics
HICKS, JOHN DONALD, *Ph.D.*, Professor of History
HIGBY, CHESTER PENN, *Ph.D.*, Professor of History
HILL, GEORGE WILLIAM, *B.A.*, Assistant Professor of Rural Sociology
HINZ, STELLA M., *Ph.D.*, Assistant Professor of German (Deceased July 5, 1938)
HOBSON, ASHER, *Ph.D.*, Professor of Agricultural Economics
HOHLFELD, ALEXANDER RUDOLPH, *Ph.D.*, Emeritus Professor of German
HOLDEN, EUGENE DAVENPORT, *M.S.*, Assistant Professor of Agronomy
HOLFORD, FRANCES ELIZABETH, *Ph.D.*, Assistant Professor of Medical Bacteriology
HOLMES, CLAYTON ERNEST, *M.S.*, Assistant Professor of Poultry Husbandry
HOLMES, MRS. ELISABETH KATZ, *M.A.*, Assistant Professor of English, Milwaukee Extension Center
HOLT, FRANK OSCAR, *Ph.M., D.Ped.*, Dean of the Extension Division
HOLT, HARRIETTE GRACE, *M.A.*, Assistant Professor of Mathematics, Extension Division
HOLT, MATTHEW LESLIE, *Ph.D.*, Assistant Professor of Chemistry
HOPKINS, ANDREW WINKLE, *B.L.*, Professor of Agricultural Journalism; Agricultural Editor
HOUGEN, OLAF ANDREAS, *Ph.D., Ch.E.*, Professor of Chemical Engineering
HOYT, MRS. EDITH EVANS, *M.A.*, Emeritus Assistant Professor of Education, Extension Division
HUFFER, CHARLES MORSE, *Ph.D.*, Assistant Professor of Astronomy; Assistant Astronomer, Washburn Observatory
HUGHES, MERRITT YERKES, *Ph.D.*, Professor of English
HUMPHREY, GEORGE COLVIN, *B.S.*, Professor of Animal Husbandry

HUNT, GEORGE MCMONIES, *B.S.*, Lecturer in Forest Products
HUNT, GEORGE TALBOT, *Ph.D.*, Assistant Professor of History, Milwaukee Extension Center
HURSLEY, FRANK MCCOLL, *M.A.*, Assistant Professor of English, Milwaukee Extension Center
HUSBAND, RICHARD WELLINGTON, *Ph.D.*, Assistant Professor of Psychology
HYDE, GRANT MILNOR, *M.A.*, Director of the School of Journalism; Professor of Journalism
HYLAND, PATRICK HENRY, *B.S., M.E.*, Associate Professor of Machine Design
HYSLOP, VOLNEY BUTMAN, *M.S., M.D., F.A.C.S.*, Professor of Oral and Plastic Surgery

ILTIS, LEON LEONARD, *B.M.*, Assistant Professor of Music
INGERSOLL, LEONARD ROSE, *Ph.D.*, Professor of Physics
INGRAHAM, MARK HOYT, *Ph.D.*, Professor of Mathematics
IRWIN, MALCOLM ROBERT, *Ph.D.*, Associate Professor of Genetics

JACKSON, HOWARD CAMPBELL, *Ph.D.*, Professor of Dairy Industry
JAMES, JOHN AMBROSE, *B.S.*, Professor of Agricultural Education
JANDA, HAROLD FREDERICK, *C.E.*, Professor of Highway Engineering and City Planning
JANSKY, CYRIL METHODIUS, *B.S., B.A.*, Professor of Electrical Engineering, Extension Division and College of Engineering
JASTROW, JOSEPH, *Ph.D., LL.D.*, Emeritus Professor of Psychology
JENSEN, KAI, *Ph.D.*, Associate Professor of Education
JEROME, HARRY, *Ph.D.*, Professor of Economics and Commerce
JOHNSON, GERTRUDE ELIZABETH, *B.A.*, Associate Professor of Speech (On leave II)
JOHNSON, JAMES, *Ph.D.*, Professor of Horticulture
JOHNSON, LAURA BUTLER, *M.A.*, Assistant Professor in the Teaching of French
JOHNSON, ROYCE EVERETT, *B.S., E.E.*, Assistant Professor of Electrical Engineering
JONES, CHESTER LLOYD, *Ph.D.*, Professor of Commerce and Political Science
JONES, EDWARD RICHARD, *M.S.*, Professor of Agricultural Engineering (Deceased October 22, 1937)
JONES, LEWIS RALPH, *Ph.D., LL.D., Sc.D.*, Emeritus Professor of Plant Pathology
JONES, MRS. NELLIE KEDZIE, *B.A., M.S., LL.D.*, Emeritus Professor of Home Economics
JONES, THOMAS EDWARD, *B.A., B.P.E.*, Professor of Physical Education
JORDON, FRANK LIGUORI, *B.S.*, Assistant Professor of Physical Education
JUAIRE, MARION ABBIE, *M.S.*, Assistant Professor of Home Economics
JUDAY, CHANCEY, *M.A., LL.D.*, Professor of Limnology

KAHLENBERG, LOUIS, *Ph.D.*, Professor of Chemistry
KASTEN, LLOYD AUGUST WILLIAM, *Ph.D.*, Assistant Professor of Spanish
KAVANAUGH, JAMES NICHOLAS, County Agricultural Representative, Brown County
KEITT, GEORGE WANNAMAKER, *Ph.D., D.Sc.*, Professor of Plant Pathology
KELLY, FREDERICK THOMAS, *Ph.D.*, Emeritus Assistant Professor of Semitics
KELSO, LESLIE ERSKINE ALLAN, *B.S.*, Assistant Professor of Electrical Engineering
KESSLER, LEWIS HANFORD, *M.S., C.E.*, Associate Professor of Hydraulic and Sanitary Engineering

KIEKHOFER, WILLIAM HENRY, *Ph.D., LL.D.*, Professor of Economics
KINNE, WILLIAM SPAULDING, *B.S.*, Professor of Structural Engineering; Consulting Engineer, Physical Plant
KIRK, GRAYSON LOUIS, *Ph.D.*, Associate Professor of Political Science
KIRKPATRICK, ELLIS LORE, *Ph.D.*, Associate Professor of Rural Sociology (On leave 1937-38)
KITTEL, PAULA MARGARETHA, *Ph.D.*, Assistant Professor of German
KIVLIN, VINCENT EARL, *M.S.*, Professor of Agricultural Education; Director of the Agricultural Short Course
KLEENE, STEPHEN COLE, *Ph.D.*, Assistant Professor of Mathematics
KLEIN, MICHAEL WILLIAM, *Ph.D.*, Assistant Professor of Chemistry
KNAPLAND, PAUL ALEXANDER, *Ph.D.*, Professor of History
KOEHLER, ARTHUR, *M.S.*, Lecturer in Forest Products
KOEHLER, GLENN, *M.S.*, Assistant Professor of Electrical Engineering
KOLB, JOHN HARRISON, *Ph.D.*, Professor of Rural Sociology (On leave II)
KOMMERS, JESSE BENJAMIN, *B.S., M.E.*, Professor of Mechanics
KOWALKE, OTTO LOUIS, *B.S., Ch.E.*, Professor of Chemical Engineering
KOZELKA, FRANK LUDWIG, *Ph.D.*, Assistant Professor of Toxicology; Toxicologist, Wisconsin General Hospital
KRAUSKOPF, FRANCIS CRAIG, *Ph.D.*, Professor of Chemistry
KREMERS, EDWARD, *Pharm.M., Ph.D., Sc.D.*, Emeritus Professor of Pharmaceutical Chemistry
KROMBHOLZ, ALOIS JOHN, *Ph.D.*, Assistant Professor of Chemical Engineering
KRUEGER, HILMAR CARL, *Ph.D.*, Associate Professor of History, Milwaukee Extension Center
KUEHNER, CONRAD LOUIS, *B.S.*, Assistant Professor of Horticulture
KUNESH, FRED WALLACE, *B.S.*, Assistant Professor of Military Science; Captain, U.S.A.
KUNZE, HARRY LEWIS, *M.A., C.P.A., J.D.*, Assistant Professor of Accounting, Milwaukee Extension Center
KURTZ, CHESTER MOTT, *M.S., M.D.*, Assistant Professor of Medicine

LACEY, JAMES JEROME, *B.S.*, Associate Professor of Animal Husbandry
LAIRD, ARTHUR GORDON, *Ph.D.*, Professor of Greek
LAMB, ELIZA, *B.A.*, Assistant Librarian
LANE, JAMES RUSSELL, *B.S.*, Assistant Professor of Speech; Manager of the University Theatre
LANGER, RUDOLPH ERNEST, *Ph.D.*, Professor of Mathematics
LANGWILL, MRS. IRENE ETTA, *B.A.*, Recorder, Milwaukee Extension Center
LA ROCK, MAX JAMES, *B.A.*, Assistant Professor of Agricultural Engineering (beg. March 2, 1938)
LARSON, GUSTUS LUDWIG, *B.S., M.E.*, Professor of Steam and Gas Engineering; Consulting Engineer, Heating Station
LARSON, LUDVIG CONRAD, *B.S., E.E.*, Assistant Professor of Electrical Engineering
LATHROPE, HOWARD ROSWELL, *B.S.*, County Agricultural Representative, Wood County
LATIMER, CLAIBORNE GREEN, *Ph.D.*, Visiting Professor of Mathematics—II
LEE, BLANCHE LUERELIA *B.S., M.A.*, State Home Demonstration Leader
LEE, JOHNATHAN MURRAY, *Ph.D.*, Assistant Professor of Education, School of Education and Extension Division
LEITH, ANDREW, *Ph.D.*, Assistant Professor of Geology—I (On leave I)
LEITH, BENJAMIN DONALD, *B.S.*, Professor of Agronomy
LEITH, CHARLES KENNETH, *Ph.D., LL.D., Sc.D.*, Professor of Geology

LEMMER, KENNETH ELERY, *B.S., M.D.*, Assistant Professor of Surgery
LENZ, ARNO, THOMAS, *M.S., C.E.*, Assistant Professor of Hydraulic and Sanitary Engineering
LEONARD, WILLIAM ELLERY, *Ph.D.*, Professor of English
LEOPOLD, ALDO, *B.S., M.F.*, Professor of Agricultural Economics
LESCOHIER, DON DIVANCE, *Ph.D.*, Professor of Economics
LESTER, CLARENCE BROWN, *M.A.*, Director of the Library School; Lecturer in Library Science
LÉVÊQUE, ANDRE CAMILLE, *Ph.D.*, Assistant Professor of French
LEWIS, HERBERT HORTON, Assistant Professor of Military Science and Tactics; Major, U.S.A.
LIGHTY, WILLIAM HENRY, *Ph.B.*, Emeritus Professor of Extension Teaching
LINK, KARL PAUL, Ph.D., Professor of Bio-chemistry
LINTON, RALPH, *Ph.D.*, Professor of Anthropology (On leave 1936-37)
LITTLE, JAMES KENNETH, *Ph.D.*, Assistant Professor of Education, School of Education and Extension Division
LIVERMORE, JOSEPH DOW, *B.S.*, Assistant Professor of Drawing and Descriptive Geometry
LONGENECKER, GEORGE WILLIAM, *B.A., M.S.*, Associate Professor of Horticulture; Executive Director, University Arboretum
LORENZ, WILLIAM FREDERICK, *M.D.*, Professor of Neuropsychiatry; Director of the Psychiatric Institute
LOWMAN, GUY SUMNER, *B.Di., M.P.E.*, Professor of Physical Education; Chairman of the Course in Physical Education for Men
LUTHER, ERNEST LEONARD, *B.A., B.S.*, Assistant State Leader of County Agricultural Representatives
LYON, ALBERT EDDY, *Ph.D.*, Assistant Professor of Spanish

MCCAFFERY, RICHARD STANISLAUS, *E.M.*, Professor of Mining and Metallurgy
MCCARTY, HAROLD BERKLEY, *B.S., M.A.*, Lecturer in Education
MCCORMICK, THOMAS CARSON, *Ph.D.*, Professor of Sociology
MCCOY, ELIZABETH FLORENCE, *Ph.D.*, Assistant Professor of Agricultural Bacteriology (On leave I)
MCCURDY, WILLIAM EDWARD, *Ph.D.*, Visiting Professor of Law
MCCUTCHEON, LEONA ESSIE FREDERICA, M.A., Assistant Professor of Debating and Public Discussion, Extension Division
MACDUFFEE, CYRUS COLTON, *Ph.D.*, Professor of Mathematics (On leave 1937-38)
MCELVAIN, SAMUEL MARION, *Ph.D.*, Professor of Chemistry
MCGILVARY, EVANDER BRADLEY, *Ph.D.*, Emeritus Professor of Philosophy
MCINTOSH, ROSCOE LYLE, *B.S., M.D.*, Associate Professor of Dermatology
MCNALL, PRESTON ESSEX, *Ph.D.*, Professor of Agricultural Economics
MCNAUL, JAMES WILBUR, *B.S.*, Assistant Professor of Machine Design
MCNEEL, WAKELIN, *B.S.*, Assistant State Leader of Boys' and Girls' Agricultural Clubs
MACK, JULIAN ELLIS, *Ph.D.*, Assistant Professor of Physics
MACKENZIE, GORDON N., *B.S., M.A.*, Associate Professor of Education; Principal of Wisconsin High School, and Director of Practice Teaching (beg. April 30, 1938)
MANNING, HAZEL, *M.S.*, Professor of Home Economics
MANSFIELD, ARTHUR WILLIAM, *M.S.*, Associate Professor of Physical Education
MARCH, HERMAN WILLIAM, *Ph.D.*, Professor of Mathematics
MARCH, JAMES HERBERT, *B.A., M.B.A., C.P.A.*, Assistant Professor of Accounting, Extension Division.

MARDEN, MORRIS, *Ph.D.*, Assistant Professor of Mathematics, Milwaukee Extension Center
MARKWARDT, LORRAINE JOSEPH, *C.E., B.S.*, Lecturer in Forest Products
MARLATT, ABBY LILLIAN, *M.S., Sc.D.*, Director of the Course in Home Economics; Professor of Home Economics
MARSHALL, WILLIAM STANLEY, *Ph.D.*, Emeritus Professor of Entomology
MARTIN, MILES J., *Ph.D.*, Professor of Physics, Milwaukee Extension Center
MASLEY, ARPAD LOUIS, *G.G.*, Associate Professor of Physical Education; Head Instructor of Required Activities
MASTEN, MABEL GARDEN, *B.S., M.D.*, Associate Professor of Neuropsychiatry
MATHEWS, JOSEPH HOWARD, *Ph.D.*, Director of the Course in Chemistry; Professor of Chemistry
MAURER, EDWARD ROSE, *B.S.*, Emeritus Professor of Mechanics
MEAD, DANIEL WEBSTER, *B.S., C.E., LL.D.*, Emeritus Professor of Hydraulic and Sanitary Engineering
MEANWELL, WALTER ERNEST, *M.D., D.P.H.*, Professor of Physical Education (On leave 1936-37)
MEEK, WALTER JOSEPH, *Ph.D.*, Assistant Dean of the Medical School; Professor of Physiology
MEIKLEJOHN, ALEXANDER, *Ph.D., LL.D.*, Professor of Philosophy—I (On leave)
MELOCHE, GLADYS LOUISE, *M.S.*, Extension Specialist in Clothing, Agricultural Extension
MELOCHE, VILLIERS WILLSON, *Ph.D.*, Associate Professor of Chemistry
MENDENHALL, MRS. DOROTHY REED, *B.A., M.D., Sc.D.*, Lecturer in Home Economics
MERRIMAN, CURTIS, *Ph.D.*, Registrar; Executive Director, Bureau of Guidance and Records
MEYER, OVID OTTO, *B.S., M.D.*, Associate Professor of Medicine
MEYER, ROLAND KENNETH, *Ph.D.*, Assistant Professor of Zoology
MICHELL, ROBERT BELL, *Ph.D.*, Assistant Professor of French
MIDDLETON, WILLIAM SHAINLINE, *M.D.*, Dean of the Medical School; Professor of Medicine
MILLAR, ADAM VAUSE, *M.S.*, Assistant Dean of the College of Engineering; Professor of Drawing and Descriptive Geometry
MILLER, ERIC REXFORD, *M.S.*, Lecturer in Meteorology
MILLER, JOHN LESTER, *B.A., Ph.M.*, Assistant Professor of Economics and Sociology, Extension Division
MILLER, WILLIAM SNOW, *M.D., Sc.D.*, Emeritus Professor of Anatomy
MILLIGAN, EDWARD ELGIN, *Ph.D.*, Assistant Professor of French and Italian
MILLINGTON, PAUL EMANUEL, *Ph.D.*, Associate Professor of Chemistry, Milwaukee Extension Center
MILLS, CHARLES HENRY, *D.M., F.R.C.O.*, Director of the School of Music; Professor of Music (Deceased July 22, 1937)
MILWARD, JAMES GARFIELD, *M.S.*, Professor of Horticulture
MOORE, JAMES GARFIELD, *M.S.*, Professor of Horticulture
MOORE, RANSOM ASA, *M.A.*, Emeritus Professor of Agronomy
MORTENSEN, OTTO AXEL, *M.S., M.D.*, Associate Professor of Anatomy
MORTENSON, WILLIAM PETER, *Ph.D.*, Associate Professor of Agricultural Economics
MORTON, WALTER ALBERT, *Ph.D.*, Professor of Economics
MOSSMAN, HARLAND WINFIELD, *Ph.D.*, Associate Professor of Anatomy
MOULTON, FRANK STILLMAN, Lecturer in Art Education
MUCKS, ARLIE MAX, *B.S.*, Associate Professor of Animal Husbandry; Program Coordinator in Agricultural Extension

MURRAY, CHRISTINA CAMERON, *B.A.*, Director of the School of Nursing; Professor of Nursing (beg. March 1, 1938)
MUSBACH, FRED LUDWIG, *B.S.*, Professor of Soils; in charge of Marshfield Branch Experiment Station
MYERS, RAYMOND HARLAND, *M.A.*, Acting Assistant Professor of Speech, Milwaukee Extension Center

NAYLOR, ROBERT HAMMIELL, *B.S.*, Assistant Professor of Military Science; Captain, U.S.A.
NEAL, MRS. ELIZABETH JOHNSON, *B.S.*, Assistant Professor of Home Economics
NEAL, NORMAN PERCY, *Ph.D.*, Assistant Professor of Agronomy and Genetics
NEAL, ROBERT MILLER, *B.A.*, Assistant Professor of Journalism
NEALE-SILVA, ALVARO EDWARDO, *Ph.D.*, Assistant Professor of Spanish
NEFF, EZRA EUGENE, *B.S.*, *M.D.*, Associate Professor of Ophthalmology
NELSEN, NORMAN MARCUS, Assistant Professor of Military Science and Tactics; Major, U.S.A.
NELSON, DELMAR WOOD, *M.S.*, *M.E.*, Assistant Professor of Steam and Gas Engineering
NESBIT, WELLWOOD MACK, *B.A.*, *M.D.*, Professor of Otolaryngology
NETTELS, CURTIS PUTNAM, *Ph.D.*, Professor of History (On leave 1937-38)
NEWELL, NORMAN DENNIS, *Ph.D.*, Assistant Professor of Geology
NICHOLS, MERLE STARR, *Ph.D.*, Lecturer in Hydraulic and Sanitary Engineering; Chemist, State Laboratory of Hygiene; Assistant Professor of Sanitary Chemistry (Associate Professor beg. March 1)
NICKERSON, FRANK, Assistant Professor of Physical Education
NOHR, ROBERT, JR., *G.G.*, *B.P.E.*, Associate Professor of Physical Education
NOLAND, LOWELL EVAN, *Ph.D.*, Professor of Zoology

OESTERLE, JOSEPH FRANCIS, *Ph.D.*, Associate Professor of Mining and Metallurgy
OGG, FREDERIC AUSTIN, *Ph.D.*, *LL.D.*, Professor of Political Science
OLSON, JULIUS EMIL, *B.L.*, Emeritus Professor of Scandinavian Languages
OMERNIK, JOHN THOMAS, *M.S.*, County Agricultural Representative, Langlade County
O'NEILL, CHARLES, *D.Mus.*, Acting Professor of Music
ORTEGA, JOAQUIN, *M.A.*, Professor of Spanish
ORTH, HERBERT DENNY, *B.S.*, Associate Professor of Drawing and Descriptive Geometry
OTTO, MAX CARL, *Ph.D.*, Professor of Philosophy
OWEN, RAY SPRAGUE, *B.S.*, *C.E.*, Associate Professor of Topographic Engineering

PAGE, WILLIAM HERBERT, *B.A.*, *LL.M.*, *S.J.D.*, Mortimer M. Jackson Professor of Law
PARKER, JAMES STRONG, *B.A.*, *M.B.A.*, Assistant Professor of Economics, Extension Division
PARKINSON, GEORGE AMBROSE, *Ph.D.*, Associate Professor of Mathematics, Milwaukee Extension Center
PARSONS, HELEN TRACY, *Ph.D.*, Professor of Home Economics
PARSONS, KENNETH HERALD, *B.A.*, Assistant Professor of Agricultural Economics
PATTERSON, HELEN MARGUERITE, *M.A.*, Assistant Professor of Journalism
PATTON, STELLA TROUT, *M.S.*, Assistant Professor of Home Economics
PERLMAN, SELIG, *Ph.D.*, Professor of Economics
PERSON, PHILIP HILMORE, *Ph.D.*, Associate Professor of Sociology, Milwaukee Extension Center

PETERSON, ALFRED WALTER, *B.A.*, Comptroller; Lecturer in Accounting
PETERSON, WILLIAM HAROLD, *Ph.D.*, Professor of Agricultural Chemistry
PFANKUCHEN, LLEWELLYN ERNEST, *Ph.D.*, Assistant Professor of Political Science (On leave I)
PHILLIPS, BURR WENDELL, *M.A.*, Assistant Professor in the Teaching of History
PHILLIPS, JAMES DAVID, *B.S.*, Business Manager (on leave April 1 to July 1, 1938)
PHILLIPS, PAUL HORRELL, *Ph.D.*, Assistant Professor of Agricultural Chemistry
PITMAN, ANN MARIA, *Ph.D.*, Associate Professor of Greek and Latin, Extension Division
POHLE, ERNST ALBERT, *M.D., Ph.D., F.A.C.R.*, Professor of Radiology
POLLOCK, JOSEPHINE, *B.S., M.A.*, Assistant State Home Demonstration Leader
POOLEY, ROBERT CECIL, *Ph.D.*, Associate Professor in the Teaching of English (On leave II)
POST, GAINES, *Ph.D.*, Associate Professor of History
PRICE, JOHN REESE, *B.S.*, Professor of Electrical Engineering; Consulting Electrical Engineer, Electric Sub Station
PRICE, WALTER VAN, *Ph.D.*, Professor of Dairy Industry
PUESTOW, KARVER LOUIS, *B.S., B.M., M.D.*, Associate Professor of Medicine
PULVER, HARRY E., *B.S., C.E.*, Professor of Civil and Structural Engineering, Extension Division
PURIN, CHARLES MALTADOR, *Ph.D.*, Director, Milwaukee Extension Center; Professor of German

QUINTANA, RICARDO BECKWITH, *Ph.D.*, Professor of English (On leave 1937-38)

RAGATZ, ROLAND ANDREW, *Ph.D.*, Associate Professor of Chemical Engineering
RAGSDALE, CLARENCE EDWIN, *Ph.D.*, Associate Professor of Education
RAMSPERGER, ALBERT GUSTAV, *Ph.D.*, Assistant Professor of Philosophy
RANDOLPH, MRS. RUTH SACKETT, *B.S., M.A.*, Associate Professor of Home Economics
RANKE, HERMANN, *Ph.D.*, Visiting Professor of Archeology—II
REAGAN, ROBERT PATRICK, *B.A.*, Assistant Professor of Physical Education
REBER, LOUIS EHRARD, *M.S., Sc.D.*, Emeritus Dean of the Extension Division
REELY, MARY KATHARINE, *B.A.*, Assistant Professor of Bibliography
REESE, HANS HEINRICH, *F.A.C.P., M.D.*, Professor of Neuropsychiatry, Department of Medicine and Wisconsin Psychiatric Institute
REHDER, HELMUT, *Ph.D.*, Associate Professor of German
REINDERS, VICTOR A., *Ph.D.*, Assistant Professor of Chemistry, Milwaukee Extension Center
REINEKING, WALTER CLARENCE, *B.A., M.D.*, Lecturer in Medicine
REYNOLDS, MRS. MAY STATLER, *Ph.D.*, Associate Professor of Home Economics
REYNOLDS, ROBERT LEONARD, *Ph.D.*, Associate Professor of History (On leave II)
RICE, WILLIAM GORHAM, JR., *M.A., LL.B., S.J.D.*, Professor of Law
RICHARDS, CLARICE AUDREY, *Ph.D.*, Lecturer in Forest Products
RICHTMANN, WILLIAM OSCAR, *Ph.D.*, Professor of Pharmacognosy
RIEMAN, GUSTAV HERMAN, *Ph.D.*, Associate Professor of Genetics, Horticulture, and Plant Pathology
RIKER, ALBERT JOYCE, *Ph.D.*, Professor of Plant Pathology
RILEY, MILES CHARLES, *LL.D.*, Lecturer in Agricultural Economics
RIPPE, RUSSELL, *Ph.B., M.A.*, Assistant Professor of Physical Education
RITCHIE, GORTON, *B.A., M.D.*, Associate Professor of Pathology
RITTER, GEORGE JOSEPH, *Ph.D.*, Lecturer in Forest Products
ROARK, RAYMOND JEFFERSON, *M.S.*, Professor of Mechanics

ROBERTS, RAY HARLAND, *Ph.D.*, Professor of Horticulture
ROCHE, BENJAMIN HAMILTON, *M.S.*, Assistant Professor of Animal Husbandry
ROCKWELL, ETHEL THEODORA, *B.A.*, Chief of the Bureau of Dramatic Activities and Assistant Professor of Speech, Extension Division
ROE, FREDERICK WILLIAM, *Ph.D., Litt.D.*, Professor of English
ROEBUCK, JOHN RANSOM, *Ph.D.*, Professor of Physics
ROESELER, ROBERT OSWALD, *Ph.D.*, Professor of German
ROGERS, SAMUEL GREENE ARNOLD, *M.A.*, Professor of French
ROLLEFSON, RAGNAR, *Ph.D.*, Assistant Professor of Physics
ROSE, REED ALDEN, *M.S., M.E.*, Assistant Professor of Steam and Gas Engineering
ROSEVEARE, WILLIAM EARL, *Ph.D.*, Assistant Professor of Chemistry
ROSS, EDWARD ALSWORTH, *Ph.D., LL.D.*, Emeritus Professor of Sociology
ROSS, SARAH GRIDLEY, *M.A.*, Hostess of Barnard Hall
ROSSI, JOSEPH, *Ph.D.*, Assistant Professor of Italian
ROTH, WILLIAM EDWARD, *Ph.D.*, Associate Professor of Mathematics, Milwaukee Extension Center
ROUSE, THEODORE ALTON, *Ph.D.*, Assistant Professor of Physics, Milwaukee Extension Center
ROWLANDS, WALTER AUGUSTUS, *B.S.*, Assistant State Leader of County Agricultural Representatives; Extension Specialist in Land Economics
ROWNTREE, GRACE LOUISE, *B.S.*, Assistant State Leader of Boys' and Girls' Agricultural Clubs
RUNDELL OLIVER SAMUEL, *LL.B.*, Professor of Law
RUNGE, ALMA MATILDA, *B.A.*, Assistant Professor of Library Science
RUPEL, ISAAC WALKER, *Ph.D.*, Assistant Professor of Animal Husbandry
RUSSO, JOSEPH LOUIS, *Ph.D.*, Associate Professor of Italian
RUSY, BEN FRANKLIN, *B.S.*, District Extension Leader, Agricultural Extension
RYALL, ERNEST VAN, *B.S.*, County Agricultural Representative, Kenosha County

SALISBURY, RACHEL, *Ph.D.*, Lecturer in the Teaching of English—II
SALTER, JOHN THOMAS, *Ph.D.*, Associate Professor of Political Science
SAMMIS, JOHN LANGLEY, *Ph.D.*, Associate Professor of Dairy Industry
SARLES, WILLIAM BOWEN, *Ph.D.*, Associate Professor of Agricultural Bacteriology
SCHAARS, MARVIN ARNOLD, *Ph.D.*, Assistant Professor of Agricultural Economics
SCHLATTER, EDWARD BUNKER, *Ph.D.*, Professor of Romance Languages, Extension Division and College of Letters and Science
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SMITH, HUGH ALLISON, *M.A.*, Professor of French
SMITH, JOSEPH FIELDING, *M.A.*, Lecturer in Speech
SMITH, LEONARD SEWELL, *C.E.*, Emeritus Professor of Engineering
SMITH, WALTER MACMYNN, *B.A.*, Librarian Emeritus (Deceased April 20, 1938)
SMITH, WILLIAM KENNETH, *Ph.D.*, Assistant Professor of Genetics and Agronomy
SOKOLNIKOFF, IVAN STEPHAN, *Ph.D.*, Associate Professor of Mathematics
SOLALINDE, ANTONIO GARCIA, *Litt.D., Ph.D.*, Professor of Spanish (Deceased July 13, 1937)
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WHITBECK, RAY HUGHES, *B.A.*, Emeritus Professor of Geography
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WINSPEAR, ALBAN DEWES, *M.A.*, Associate Professor of Classics
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WISNICKY, WALTER W., *B.S., D.V.M.*, Professor of Agricultural Bacteriology (beg. April 15, 1938)
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FEUTZ, FRED, *B.S.*, Instructor in Dairy Industry
FICK, HAROLD FRANK, Assistant in Dairy Industry
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IHLE, CHARLES *M.*, *B.S.*, *M.D.*, Assistant Resident in Orthopedic Surgery
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JACKSON, VIRGIL DAVIS, *M.S.*, Graduate Assistant in Education
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JOHNSON, RUTH MARGARET, *Ph.M.*, Teacher of History, Wisconsin High School
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JONES, LOUISE FENGER, *M.A.*, Graduate Assistant in Psychology
JONES, PAUL GEORGE, *B.M., M.A.*, Instructor in Music
JOOS, MARTIN, *M.A.*, Graduate Assistant in German
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KANNE, MRS. ELIZABETH MUELLER, *M.A.*, Research Assistant in Agricultural Bacteriology
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KAPLAN, LOUIS, *B.S., M.A.*, Assistant Librarian
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LEVIN, ROBERT HAROLD, *B.A.*, Graduate Assistant in Chemistry
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LIEGL, LEOPOLD JOSEPH, *B.S.*, Instructor in Music
LIESCH, WILLIAM HENRY, Instructor and Field Representative, Extension Division
LILES, JOHN LEMLEY, *M.S.*, Assistant in Agricultural Economics
LILLY, JOHN HENRY, *B.S.*, Instructor in Economic Entomology
LINDBECK, WENDELL ARTHUR, *B.S., Ph.M.*, Graduate Assistant in Chemistry
LINDQUIST, CLARENCE BERNHART, *B.E.*, Graduate Assistant in Mathematics
LINDSAY, CHARLES ERIKSEN, *B.S.*, Research Assistant in Medicine—II
LINS, ANGELINE GENEVIEVE, *B.A.*, Instructor in Accounting
LIPSCHITZ, MORRIS ABRAHAM, *B.S., Ph.M.*, Research Assistant in Agricultural Chemistry
LISKA, JOSEPH ARTHUR, *B.S.*, Instructor in Mechanics
LIVESAY, NAOMI MARY, *B.A.*, Research Assistant in Education
LIVINGSTON, HELEN MARGARET, *B.S.*, Graduate Assistant in Dietetics
LOEVENHART, MRS. MINNIE GOLDSMITH, Library Assistant, Medical Library
LOHR, ARTHUR DANIEL, *B.A.*, Graduate Assistant in Chemistry
LONG, LEONARD, *B.A., B.S., M.D.*, Assistant Resident in Radiology—II
LONG, VIRGIL ELBERT, *M.A.*, Graduate Assistant in Sociology—II
LOOMER, ALLISON POTTER, *M.A.*, Graduate Assistant in Mathematics
LOOMER, CHARLES WILLIAM, *M.S.*, Assistant in Agricultural Economics
LOSSIN, EDWARD J., Teacher of Labor Problems, School for Workers in Industry—II
LOWE, MYRON JAMES, Instructor and Field Representative, Extension Division
LOWERY, MARGARET ANN, *M.A.*, Graduate Assistant in Spanish
LUND, CURTIS JOSEPH, *M.S., M.D.*, Assistant Resident in Obstetrics and Gynecology
LUNDEGREN, HAROLD PALMER, *Ph.D.*, Research Associate in Chemistry
LUZENSKA, KUNDA, *M.A.*, Graduate Assistant in French
LYCAN, GLENN WINFRED, *B.S.*, County Agricultural Representative, Sheboygan County

LYNAUGH, MRS. ETHEL MALEC, *B.A.*, Library Assistant
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MCALEAVY, CHARLES JOSEPH, *B.S.*, Assistant County Agricultural Representative, Marathon County
MCANENY, JOHN BARRY, *B.A., M.D.*, Assistant Resident in Radiology
MCCAFFREY, MAURICE E., Secretary of the Regents
MCCANSE, RALPH ALAN, *M.A.*, Instructor in English, Extension Division
MCCARTER, JANET RUTH, *Ph.D.*, Instructor in Agricultural Bacteriology—I; Research Associate in Agricultural Bacteriology—II
MCCARTER, JOHN CARROLL, *B.A., M.D.*, Instructor in Pathology
MCCAULEY, HARRY JAMES, *B.S.*, Research Assistant in Chemical Engineering
MCCLELLAND, GLENN BRYAN, *B.A.*, Acting Instructor in Political Science
MCCORDIC, MRS. MARGARET PIPER, *B.S.*, Extension Specialist in House Management, Agricultural Extension
MCCORMICK, JAMES WILLIAM, *M.A.*, Graduate Assistant in History—I
MCCREERY, MAUD, Teacher of Labor Problems, School for Workers in Industry (Deceased April 10, 1938)
MCDANIEL, WILBUR CHARLES, *B.S.*, Graduate Assistant in Mathematics
MCDONALD, ANNETTE ELIZA, *B.S.*, Home Demonstration Agent, Green Lake County
MCDONALD, GILBERT EDWARD, *B.A.*, Assistant in Physical Education
MCDONOUGH, KENNETH BERNARD, *B.A., M.D.*, Instructor in Pediatrics
MCDOWELL, VERA BERNIECE, *B.S.* Home Demonstration Agent Dodge County
MCFARLANE DOUGLAS JAMES *B.S.* Instructor in Engineering Economics
MCFARLANE, JESSIE JEAN, *B.S.*, Instructor in Home Economics Extension (On leave Sept. 15 to March 20, 1938)
MCFETRIDGE, WILLIAM LAUREN, *B.S.*, County Agricultural Representative, Taylor County
MCGRATH, HENRY JOSEPH, Assistant, Department of Military Science; Sergeant, U.S.A.
MCGUAN, CECELIA, Assistant Editor, Extension Division
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MALEC, JOHN PETER, *B.A., M.S., M.D.*, Resident in Surgery, Wisconsin General Hospital
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MARESH, FRANK, *M.S.*, Instructor in Physiology
MARQUARDT, ELLA, *B.E.*, Assistant in Visual Instruction, Extension Division
MARQUART, WILLIAM RYE, *B.S.*, County Agricultural Representative, Polk County
MARQUETTE, CLARE LESLIE, *M.A.*, Graduate Assistant in History
MARSDEN, RALPH WALTER, *Ph.M.*, Graduate Assistant in Geology
MARSHALL, PHILIP GREGORY, *LL.B.*, Librarian, Law School; Instructor in Legal Bibliography
MARTIN, EDWIN THOMAS, *Ph.B., M.A.*, Graduate Assistant in English
MARTIN, ELLA MAY, *Ph.D.*, Instructor in Botany, Milwaukee Extension Center
MARTIN, GEORGE ALFRED, *B.S.*, Instructor in Physical Education
MARTIN, GEORGIA MORRISON, Assistant Registrar
MARTIN, MRS. MINNA C., Acting Order Librarian—II
MARTNER, GRACE CAROLINE, *B.S.*, Assistant in Visual Instruction
MARVIN, HORACE NEWELL, *B.A.*, Graduate Assistant in Zoology
MASON, ARNOLD CAVERLY, *B.S.*, Graduate Assistant in Geology
MASSEY, GEORGE FREDERICK, *B.S.*, County Agricultural Representative, Waupaca County
MATHEWS, LEE HOWARD, *B.E., Ph.M.*, Research Specialist, Research Project in School Broadcasting
MAXFIELD, FREDERICK AUSTIN, *M.S.*, Instructor in Electrical Engineering
MAY, ALBERT EMIL, *Ph.D.*, Instructor in Mathematics, Extension Division
MAYLAND, HARRISON CARL, *B.S.*, Research Assistant in Chemistry
MEHLIG, MRS. MADELINE FESS, *M.S.*, Instructor in Home Economics
MEISTER, FRANKLIN OTTO, *B.S., M.D.*, Instructor in Neuropsychiatry
MELLISH, CHARLES HENRY, *Ph.D.*, Research Assistant in Anesthesia
MELOCHE, MRS. ALICE KING, *B.A.*, Manager of the Student Employment Bureau
MERCIER, GERMAINE EUGENIE, *B.S., M.A.*, Instructor in French
MERRILL, HORACE SAMUEL, *B.E., Ph.M.*, Graduate Assistant in History
MESHEW, MAURICE HEASLET, *B.S.*, Assistant in Poultry Husbandry
METZNER, CHARLES ALFRED, *B.A.*, Graduate Assistant in Psychology
MEYER, BENNO WALTER, *B.S.*, Instructor and Field Representative
MEYER, EUGENE CLARENCE, *M.S.*, Instructor in Agricultural Engineering
MEYER, MARGARET HINKEL, *B.A., M.S.*, Instructor in Physical Education
MEYER, WILLIAM FREDERICK, *B.S.*, County Agricultural Representative, Price County
MICHAUD, MARIE-LOUISE, *M.A.*, Graduate Assistant in French
MIDDELFART, CHRISTIAN FREDRIK, *B.A., M.D.*, Instructor in Medicine
MILLER, AARON VERNON, County Agricultural Representative, Richland County
MILLER, MRS. ALICE BURDICK, Research Assistant in Anatomy
MILLER, CLAUDE KIMBERLIN, *B.S., M.D.*, Assistant Resident in Eye, Ear, Nose and Throat, Wisconsin General Hospital
MILLER, DOROTHY DEANE, *B.S.*, Assistant in Occupational Therapy
MILLER, EDWARD ERNST, *B.S.*, Research Assistant in Physics
MILLER, HARRY A., Teacher of Labor Problems, School for Workers in Industry
MILLER, PAUL GILBERT, *M.S.*, Research Assistant in Dairy Industry

MILLS, CHARLES SELBY, *M.A., M.D.*, Assistant Resident in Medicine, Wisconsin General Hospital (to April 1, 1938); Assistant Chief Resident in Medicine and Instructor in Cardiology (beg. April 1, 1938)
MINAR, MRS. LOUISE PADBERG, *B.M., M.A.*, Graduate Assistant in Comparative Literature
MINER, RUTH PAULINE, *B.A., B.L.S.*, Library Assistant
MITCHELL, ALBERT ORTON, *M.A.*, Graduate Assistant in Speech
MITCHELL, DONALD RICHARDS, *M.S.*, Instructor in Agricultural Economics
MITCHEL, WILBUR LEONARD, *B.A.*, Graduate Assistant in Mathematics
MONROE, CHARLES REXFORD, *M.A.*, Graduate Assistant in History
MOORE, JOHN THOMAS, *B.A.*, Graduate Assistant in Mathematics
MOORE, STANFORD, *B.A.*, Research Assistant in Biochemistry
MOORE, WAYNE EDWIN, *B.S.*, Research Assistant in Botany—I
MOORE, WILLIAM MCKINLEY, *M.A.*, Graduate Assistant in Journalism
MORGAN, WARREN BROOKE, JR., *B.A.*, Graduate Assistant in Mathematics
MORRIS, MARRIOTT CANBY, *M.A.*, Graduate Assistant in German
MORRISON, MRS. IONE MEYERS, Instructor in Debating and Public Discussion, Extension Division
MORRISON, ROBERT FELIX, *M.A.*, Instructor in English, Milwaukee Extension Center
MORSE, CARYL CHARLOTTE ELIZABETH, *B.A.*, Graduate Assistant in Speech—II
MORTENSON, CARL WALTER, *B.A.*, Graduate Assistant in Chemistry
MORTIMER, MRS. IVA RANKIN, *M.A.*, Graduate Assistant in Zoology
MORTON, JOHN HAROLD, *B.S., Ph.G., M.D.*, Assistant Resident in Obstetrics and Gyncecology, Wisconsin General Hospital
MOWRY, GEORGE EDWIN, *M.A.*, Instructor in History, Extension Division
MOWRY, MRS. LAVERNE RAASCH, *M.A.*, Graduate Assistant in English
MOWRY, WILLIAM ATWOOD, *M.D.*, Clinical Professor of Medicine
MUCKENHIRN, ROBERT JOHN, *Ph.D.*, Instructor in Soils (On leave II)
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MUELLER, WILLIAM ANTON, *B.S.*, Graduate Assistant in Chemistry
MULLENDORF, GAYLORD IRWIN, *B.E.*, County Agricultural Representative, Door County
MURAT, SIDNEY PARKMAN, *B.S.*, County Agricultural Representative, Fond du Lac County
MURPHY, EUGENIA ELIZABETH, *B.S., M.D.*, Resident in Pediatrics, Wisconsin General Hospital
MURPHY, THOMAS WILLIAM, *B.S.*, Teacher of Physical Education, Wisconsin High School
MURRELL, THOMAS ALLEN, JR., *B.S.*, Research Assistant in Physics
MUSBACH, WILLIAM FREDERIC, *B.S.*, Graduate Assistant in Economics—I
MUSSER, MARC JAMES, *B.A., M.D.*, Instructor in Neuropsychiatry
MYGDAL, ELNA (MRS. R. S. HARTENBERG), *M.S.*, Instructor in Physical Education

NALBANDOV, ANDREW VLADIMIR, *M.S.*, Research Assistant in Genetics
NEGLEY, WILLIAM HENRY, *B.S.*, University Editor
NEILL, WAYNE KENNETH, *M.S.*, Instructor in Chemical Engineering
NELSON, CLIFFORD HERBERT, *B.S.*, Assistant County Agricultural Representative, Clark County—I; County Agricultural Representative, St. Croix County—II
NELSON, EDWARD MONS, *B.A.*, Graduate Assistant in Zoology
NELSON, EDWIN ROBSON, *B.S., M.D.*, Assistant Resident in Orthopedic Surgery
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NELSON, SEVERINA ELAINE, *M.A.*, Graduate Assistant in Educational Methods
NESBIT, MARK EDWIN, *M.D.*, Clinical Associate in Neuropsychiatry; Instructor in Surgery
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NEU, VICTOR FREDERICK, *M.A.*, Assistant Resident in Urology
NEWCOMB, EMILIE ALDEN, *Ph.D.*, Instructor in English—I
NEWELL, HOMER EDWARD, JR., *B.A.*, Graduate Assistant in Mathematics
NEWSOM, SHIRLEY ELEANOR, *M.S.*, Instructor in Home Economics
NICHOLES, HENRY JOSEPH, *B.A.*, Research Assistant in Physiology
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NORDFELT, SAMUEL BERNHARD, *M.S.*, Research Assistant in Agricultural Chemistry—I
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NORTON, WILLIAM IGNATIUS, Graduate Assistant in Anatomy
NOYES, WILLIAM BAKER, *B.S.*, County Agricultural Representative, Iowa County
NUQUIST, ANDREW EDGERTON, *M.A.*, Graduate Assistant in Political Science
NUSBAUM, DANIEL DAVID, *B.S.*, Assistant in Dairy Industry
NYBROTEN, ALFRED NORMAN, *B.E.*, Assistant in Agricultural Economics
NYE, RUSSEL BLAINE, *M.A.*, Graduate Assistant in English

OAKES, FRANK EDWIN, *M.A.*, Graduate Assistant in French
OATWAY, WILLIAM HANLON, JR., *B.S.*, *M.D.*, Instructor in Medicine
OBERDORFER, DOUGLAS WALLACE, *M.A.*, Research Assistant in Sociology and Anthropology
O'CONNOR, GEORGE MCGREGOR, *B.S.*, County Agricultural Representative, Crawford County—II
OELSCHLAGER, VICTOR RUDOLPH BERNHARDT, Ph.D., Instructor in Spanish
OESTERICH, CARL RALPH, *B.S.*, Instructor in Structural Engineering, Milwaukee Extension Center
OGDEN, WILLIAM BUTLER, *M.S.*, Instructor in Horticulture
OLESON, JEROME JORDON, *B.S.*, Research Assistant in Agricultural Chemistry
OLSON, MRS. BEULAH, Assistant in Animal Husbandry—II
ORNSTEIN, JACOB, *B.S.*, *M.A.*, Research Assistant in Spanish—I; Graduate Assistant in Spanish—II
ORTH, OSWALD SIDNEY, *M.S.*, Instructor in Physiology
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OWENS, MILDRED, *M.S.*, Home Demonstration Agent, Milwaukee County

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PARKER, LESTER WARD, *B.A.*, Radio Education Specialist, Research Project in School Broadcasting
PARKINSON, DAVID BIGELOW, *Ph.D.*, Research Associate in Physics
PARKS, JOHN LOUIS, *M.D.*, Graduate Assistant in Medical Pathology

PARKS, LLOYD MCCLAIN, *M.S.*, Research Assistant in Pharmacy
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PEASE, HELENE HATTIE, *B.S.*, Instructor in Home Economics
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PEOT, JOSEPH JOHN, *B.S.*, Instructor in Drawing and Descriptive Geometry
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PERKINS, WALTER MORRIS, *B.A.*, Research Assistant in Sociology—I
PERRY, EDMOND S., *B.S.*, Research Assistant in Chemistry
PESSIN, JOSEPH, *Ph.D.*, *M.D.*, Instructor in Neuropsychiatry—II
PESSIN, SAMUEL BEN, *M.D.*, Senior Pathologist, State Laboratory of Hygiene
PETERING, HAROLD GEORGE, *B.S.*, Research Assistant in Chemistry
PETERS, CHARLES FREDERICK, Instructor in Mechanical Practice
PETERSEN, EDWIN BENDIX, *B.A.*, Graduate Assistant in Commerce
PETERSON, ELWIN HERBERT, *M.S.*, Assistant in Agricultural Bacteriology
PETTUS, FLORENCE, *B.A.*, *M.D.*, Assistant Resident in Surgery
PFEFFER JOHN CLARENCE *B.S.*, Assistant in Dairy Industry
PFEIFFER, MRS. LILLIAN TWENHOFEL, *M.A.*, Teacher of Modern Languages, Wisconsin High School
PHELPS, ALLEN SPENCER, *B.S.*, Research Assistant in Agricultural Bacteriology and Agricultural Chemistry
PICK, JOHN FRANCIS, *M.A.*, Graduate Assistant in English
PIERCE, WILBUR PARKER, *B.A.*, *M.S.*, Graduate Assistant in Botany
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WOLF, MARK ADAM, *B.S.*, Assistant in Agricultural Bacteriology
WOLF, MICHAEL JOSEPH, *B.A.*, Research Assistant in Botany
WOLFE, HAROLD RECLUS, *Ph.D.*, Instructor in Zoology
WOLFE, HARRY DEANE, *B.S.*, *M.A.*, Graduate Assistant in Commerce
WOLFSTEIN, ISABEL JANE, *B.A.*, *M.D.*, Assistant Resident in Medicine
WOLINE, ERNST W., *B.S.*, County Club Agent, Washburn County
WOOD, ARTHUR LEWIS, *M.A.*, Graduate Assistant in Sociology and Anthropology
WOOD, CHARLOTTE ROBERTSON, *M.A.*, Instructor in English; Secretary, Freshman English
WOODHULL, ROBERT BERKSHIRE, *B.A.*, *B.S.*, *M.D.*, Assistant Resident in Obstetrics and Gynecology—I
WOODRUFF, SAMUEL AMOS, *M.S.*, Research Assistant in Forest Products
WOODWARD, VERNON EDWARD, *B.E.*, Assistant in Boxing
WOOLLEY, DILWORTH WAYNE, *M.S.*, Research Assistant in Agricultural Chemistry
WORKMAN, JOHN DAVID, *M.A.*, Graduate Assistant in German
WORLEY, GORDON, *M.A.*, Research Assistant in Medical Bacteriology
WORSENCROFT, ROBERT ROCKWOOD, *B.S.*, Instructor in Drawing and Descriptive Geometry
WRIGHT, HENRY WILKES, *M.A.*, Graduate Assistant in Psychology
WRIGHT, JAMES DIXON, *M.A.*, Graduate Assistant in German
WRIGHT, MARGARET MAY, *M.A.*, Research Assistant in German
WRIGHT, PHILIP LINCOLN, *M.S.*, Graduate Assistant in Zoology
WRIGHT, RUFUS WILLIAM, *B.A.*, Research Assistant in Physics
WYSS, ORVILLE, *B.S.*, Research Assistant in Agricultural Bacteriology and Agricultural Chemistry

YOUMANS, WILLIAM BARTON, *B.S.*, *M.A.*, Instructor in Physiology
YOUNG, GEORGE FRANCIS, Instructor in Mechanical Practice
YOUNGBLOOD, JOHN FRANCIS, *B.A.*, Graduate Assistant in Physics
YOUNGERMAN, HENRY CLAYMAN, *M.A.*, Graduate Assistant in Speech

ZAHORIK, JOHN JOSEPH, *B.S.*, County Agricultural Representative, Buffalo County
ZAMSKY, JOSEPH, *B.S.*, Graduate Assistant in Electrical Engineering—II
ZIEGLE, ERNA EMMA, *R.N.*, *B.S.*, Instructor in Nursing
ZILMER, DELBERT EDWARD, *M.S.*, Graduate Assistant in Mathematics
ZIMMER, GEORGE PIERRE, *B.S.*, Assistant in Plant Pathology—II
ZIMMERMAN, LESTER FRED, *M.A.*, Instructor in English, Extension Division
ZINN, ZEA, *Ph.D.*, Instructor in English, Extension Division
ZOERB, CARL RUDOLPH, *B.S.*, County Agricultural Representative, Vilas County

FELLOWS AND SCHOLARS

ANDERSON, RUSSELL JAMES, *M.A.*, Scholar in Political Science
ANDREWS, ARTHUR CLINTON, *M.S.*, Wisconsin Alumni Research Foundation Scholar in Chemistry—I
ARGOE, KOSTIS TAMIAS, *B.A.*, President Adams Fellow in History
ARNOLD, AARON, *Ph.D.*, Industrial Fellow in Agricultural Chemistry
ASCHAM, KATHERINE JESSIE, *B.A.*, Wisconsin Alumni Research Foundation Scholar in Agricultural Chemistry
ASENJO, CONRADO FREDERICO, *Ch.E.*, J. S. Guggenheim Fellow in Pharmacy
AUSTIN, FRANK GLENN, *B.A.*, Fellow in Philosophy
AXELROD, ABE EDWARD, *M.A.*, Wisconsin Alumni Research Foundation Scholar in Agricultural Chemistry

BAILEY, WARREN RICHARDS, *M.S.*, Fellow in Agricultural Economics
BAKER, HENRY DEAN, *B.A.*, Fellow in Physics
BARTER, ROBERT HENRY, *B.S.*, Dormitory Fellow
BARTLE, GLADYS LEORA, *M.S.*, Honorary Scholar in Art Education
BATCHELOR, HAROLD WINTHROP, *B.S.*, Honorary Scholar in Agricultural Bacteriology—I
BECK, HERBERT HENRY, *B.S.*, Industrial Fellow in Dairy Industry
BEERY, GEORGE SHAFER, *M.A.*, Fellow in Education
BELL, JAMES HENRY, *B.A.*, Wisconsin Alumni Research Foundation Scholar in Mathematics
BERGER, JULIUS, *M.A.*, *M.S.*, Fellow in Agricultural Chemistry
BERGER, KERMIT CARL, *B.S.*, Industrial Fellow in Soils—II
BEYER, KARL HENRY, JR., *B.S.*, *M.A.*, Wisconsin Alumni Research Foundation Scholar in Physiology
BLODGETT, ROBERT BELL, *B.S.*, Wisconsin Alumni Research Foundation Scholar in Chemistry
BOHONOS, NESTOR, *B.S.*, Wisconsin Alumni Research Foundation Scholar in Agricultural Chemistry
BONNET, JUAN AMÈDÈE, *M.S.*, Honorary Scholar in Soils
BOWMAN, DONALD H., *M.S.*, Fellow in Plant Pathology—II
BOWMAN, WILLIAM HUNTER, *B.A.*, Dormitory Fellow
BOYES, JOHN WALLACE, *M.S.*, Wisconsin Alumni Research Foundation Scholar in Botany
BROCK, IGNATIUS WADSWORTH, *Ph.B.*, *M.A.*, Fellow in French
BROOKS, MELVIN SCHUBERT, *B.A.*, *M.S.*, Fellow in Sociology
BUCKHAM, ALEX FRASER, *M.S.*, Wisconsin Alumni Research Foundation Scholar in Geology
BULL, WILLIAM EMERSON, *M.A.*, Fellow in Spanish
BURDICK, HARVEY LAURENCE, *B.A.*, Milton College Scholar in Economic Entomology
BURKHART, BERNARD ARNDT, *Ph.D.*, Industrial Fellow in Plant Pathology and Agronomy
BUSSE, LOUIS WILLIAM, *B.S.*, *B.A.*, Hollister Fellow in Pharmacy
BYRNE, HAROLD JAMES, *B.S.*, Wisconsin Alumni Research Foundation Scholar in Zoology—I

CARPENTER, THOMAS LYMAN, *B.S.*, Industrial Fellow in Economic Entomology
CARRANZA, MATILDE, *M.A.*, Fellow in Spanish
CAST, ANITA MARGARET, *M.A.*, Harriet Remington Laird Fellow in German

CHILD, CLIFTON JAMES, *M.A.*, Commonwealth Fellow in History
CHRISTIANSEN, JAMES BRACKNEY, *M.A.*, Industrial Fellow in Poultry Husbandry
CLAUS, PEARL ELIZABETH, *Ph.D.*, Jonathan Bowman Memorial Fund Fellow
CLEMENS, ELI WINSTON, *M.S.*, Honorary Scholar in Economics—I
COLE, RANDAL HUDIE, *M.A.*, Wisconsin Alumni Research Foundation Fellow in Mathematics
COLEBANK, ANDY WALKER, *B.S.*, Fellow in Agricultural Economics
COLINGSWORTH, DONALD RUDOLPH, *M.S.*, Industrial Fellow in Agricultural Bacteriology
CONARY, ROBERT EKVALL, *B.Ch.E.*, Fellow in Chemistry
COOMBS, ALBERT IRVING, *B.A.*, Industrial Fellow in Agricultural Chemistry
COPPS, DOROTHY STODDARD, *B.A.*, Wisconsin Scholar in German
CÔTÉ, ADRIAN JOSEPH, *B.S.*, Province of Quebec Fellow in Genetics
COX, ROY ALAN, *M.A.*, Fellow in French and Italian
CROST, MUNSEY EMANUEL, *B.S.*, Wisconsin Alumni Research Foundation Scholar in Physics—I
CROW, EDWIN LOUIS, *B.S.*, Wisconsin Alumni Research Foundation Scholar in Mathematics

DAHLKE, HELMUT OTTO, *M.A.*, Fellow in Sociology
DASLER, WALDEMAR, *M.S.*, Industrial Fellow in Agricultural Chemistry
DAVEY, EDWARD VAUGHAN, *Ph.B.*, Dormitory Fellow
DEREER, MILTON, *B.A.*, Social Science Research Council Fellow in Economics
D'IANNI, JAMES DANIEL, *B.S.*, Industrial Fellow in Chemistry
DIMLER, ROBERT JULIUS, *B.S.*, Wisconsin Alumni Research Foundation Fellow in Agricultural Chemistry
DOEGE, MARGARET MARY, *B.A.*, Scholar in French
DREWS, PEARL AUGUSTA, *B.S.*, Scholar in History
DUNCAN, ROBERT ELI, *M.A.*, Fellow in Botany

EDGAR, EARL EUGENE, *M.A.*, Fellow in Philosophy
EDWARDS, ERIC THOMAS, *M.S.*, Commonwealth Fellow in Plant Pathology
EISTER, ALLAN WARDELL, *M.A.*, Scholar in History
ELLINGSON, HAROLD VICTOR, *M.S.*, Dormitory Fellow
ENGEL, RUBEN WILLIAM, *Ph.B.*, Dormitory Fellow
ENTRIKIN, PAUL POWERS, *B.S.*, Wisconsin Alumni Research Foundation Scholar in Chemistry
EVANS, ROBERT JOHN, *M.S.*, Wisconsin Alumni Research Foundation Fellow in Agricultural Chemistry
EVERETT, CORNELIUS JOSEPH, JR., Fellow in Mathematics

FALK, VICTOR SOFUS, *B.A.*, Dormitory Fellow
FARQUHARSON, HELEN ELIZABETH, *B.A.*, Adams Fellow in Greek
FIEDLER, WILLIAM MORRIS, *B.A.*, *M.S.*, Fellow in Geology
FIEK, GERTRAUT HELENE, German House Exchange Fellow
FOSTER, EDWIN MICHAEL, *M.A.*, Wisconsin Alumni Research Foundation Scholar in Agricultural Bacteriology
FRAMPTON, JOHN ROSS, *B.A.*, Fellow in Law
FRANKLIN, RICHARD CRAWFORD, *B.A.*, Wisconsin Alumni Research Foundation Fellow in Chemistry
FROST, DOUGLAS VAN ANDEN, *B.A.*, Industrial Fellow in Agricultural Chemistry
FULLER, MARGARET, Elizabeth King Ellicott Fellow in Political Science

GEMANT, ANDREW, *Ph.D.*, *M.D.*, Post-Doctorate Fellow in Electrical Engineering—II

GILBERT, PAUL THOMAS, JR., *B.S.*, Wisconsin Alumni Research Foundation Fellow in Chemistry
GIVENS, MARY LOUISE, *M.A.*, Honorary Scholar in French
GOUMENIOUK, GLEB IVANOVITCH, *M.S.*, Research Fellow in Electrical Engineering
GREGORY, ISAAC COLES, *B.S.*, Scholar in Soils
GRETHER, WALTER FRANK, *M.A.*, Fellow in Psychology
GROAT, RICHARD ARNOLD, *B.S.*, Wisconsin Alumni Research Foundation Scholar in Anatomy

HALL, JAMES WINFORD, *B.A.*, Scholar in English
HARDEGAN, MARGARETE EMMA, *B.A.*, German House Scholar
HARRINGTON, CECIL DAVIS, *B.A.*, Industrial Fellow in Economic Entomology
HARRIS, C. LOWELL, Social Science Research Council Fellow in Social Sciences
HEGBAR, HOWARD RODMAN, *B.S.*, Wisconsin Alumni Research Foundation Scholar in Electrical Engineering
HEIMONEN, HENRY SAMUEL, *B.A.*, *Ph.M.*, Fellow in Geography
HEIN LUCILLE ELEANORE, *B.A.*, Wisconsin Scholar in Comparative Literature
HERTZ, ROY, *Ph.D.*, Chappell Brothers' Fellow in Zoology
HIGGS, NORMAN C., *B.E.*, Dormitory Fellow
HJELLE, ALBERT EDWARD, *B.A.*, University Scholar in History—II
HOIBERG, ARNOLD JOHN, *Ph.D.*, Post-Doctorate Fellow in Chemical Engineering
HOISINGTON, LAURENCE EARL, *B.A.*, Wisconsin Alumni Research Foundation Scholar in Physics
HORNSETH, RICHARD ALLEN, *B.A.*, Carroll College Scholar—I
HURST, ROBERT EDWARD, *B.A.*, *M.S.*, General Education Board Fellow in Agricultural Chemistry

JACKSON, MARION LEROY, *M.S.*, Industrial Fellow in Soils
JOHNSON, ELDON LEE, *B.A.*, *Ph.M.*, Fellow in Political Science
JOHNSON, WILLIAM MARTIN, *B.S.*, Wisconsin Alumni Research Foundation Scholar in Soils
JONES, RANDALL J., *M.S.*, Industrial Fellow in Soils
JOOS, LOTHAR ALFRED, *B.S.*, Industrial Fellow in Agricultural Chemistry

KAISER, HENRY, *B.A.*, *LL.B.*, Fellow in Law
KELLY, ALICE LOUISE, *B.A.*, Omicron Nu Scholar in Home Economics—II
KENNEDY, WILLIAM FRANCIS, *M.A.*, Scholar in Economics—II
KERSHNER, FREDERICK DOYLE, JR., *B.A.*, University Scholar in History—I
KING, MORTON BRANDON, *M.A.*, Fellow in Sociology
KNUDTSON, GLENN WINFIELD, *B.A.*, Torger Thompson Scholar
KOCH, MRS. IONE CLINTON, *B.A.*, Wisconsin Scholar in Economics
KOHLER, GEORGE OSCAR, *M.S.*, Industrial Fellow in Agricultural Chemistry
KOWALKE, RUTH S., *B.S.*, Milwaukee Downer College Scholar
KRAUSKOPF, ELIZABETH-JANE, *B.A.*, *M.S.*, Fellow in Agricultural Bacteriology
KRONCKE, ROBERT GEORGE, *B.A.*, Dormitory Fellow
KUEHL, ESTHER CAROL, *B.E.*, Scholar in History

LAHMAN, CARROLL POLLOCK, *M.A.*, Fellow in Speech
LAIDLAW, HARRY HYDE, JR., *M.S.*, Dormitory Fellow
LANGEPARTEL, WILLIAM WINTER, *B.A.*, Gund Scholar in German
LANGHUS, WILLARD LEROY, *B.S.*, Industrial Fellow in Dairy Industry
LATTA, ROBERT TUDOR, *B.S.*, Scholar in Agronomy
LEASE, ELMER JOHN, *Ph.D.*, Industrial Fellow in Agricultural Chemistry
LEASE, MRS. JANE GERMER, *Ph.D.*, Industrial Fellow in Agricultural Chemistry

LEDINGHAM, GEORGE FILSON, *M.S.*, Fellow in Genetics
LEISERSON, AVERY, Social Science Research Council Fellow in Social Sciences
LERNER, SIDNEY MONROE, *B.A.*, Wisconsin Scholar in Economics
LOCKE, SETH BARTON, *Ph.D.*, Industrial Fellow in Plant Pathology
LOVSHIN, LEONARD LOUIS, *B.S.*, Dormitory Fellow
LULL, PAUL EMERSON, *M.A.*, Honorary Scholar in Speech

MCCARTHY, MARGARET MARY, *M.A.*, Honorary Scholar in Speech
MCCARTY, PAUL TRUMAN, *M.A.*, Fellow in German
MCDANIEL, LLOYD EVERETT, *M.S.*, Fellow in Agricultural Bacteriology
MCGUIRE, PAUL FRANCIS, *B.A.*, Scholar in Economics
MAGNANI, ARTHUR, *Ph.D.*, Post-doctorate Fellow in Chemistry
MALLIN, ESTELLE CLARA, *M.A.*, Scholar in Philosophy
MARGETIS, LULA MARTHA, *B.A.*, Adams Fellow in Greek
MEAD, LOUISE FENTON, *B.S.*, Jonathan Bowman Memorial Fund Fellow in Medicine
MICKELSEN, OLAF, *M.S.*, Industrial Fellow in Agricultural Chemistry
MICKELSON, SOREN CHRISTIAN, *B.A.*, Lawrence College Scholar
MILLER J. DON, *B.A.*, University Scholar in Economics
MILLER, RUTH PRESTON, *M.A.*, Annie Gorham Fellow in English—I
MINAR, EDWIN LEROY, JR., *B.A.*, Fellow in Classics
MOELLER, THERALD, *B.S.*, Industrial Fellow in Chemistry
MOHS, FREDERIC EDWARD, *B.S.*, *M.D.*, Jonathan Bowman Memorial Fund Fellow in Medicine
MOSZCZYNSKI, CHARLES, *M.A.*, Fellow in History
MUELLER, MARTIN JULIUS, *B.A.*, Dormitory Fellow
MYERS, CHARLES A., Social Science Research Council Fellow in Social Sciences

O'BEIRNE, BERT ELLIS, *Ph.B.*, Fellow in Economics
OWEN, RAYMOND DAVIS, *B.S.*, Wisconsin Alumni Research Foundation Scholar in Genetics
OWEN, WILLIAM LUDWELL, *B.S.*, Industrial Fellow in Agricultural Bacteriology

PARKINSON, HAROLD LESTER, *B.S.*, Wisconsin Alumni Research Foundation Scholar in Soils
PETAJA, AHTI ELLIS, *B.S.*, Wisconsin Alumni Research Foundation Scholar in Mechanical Engineering
PIPES, LOUIS ALBERT, *Ph.D.*, Post-Doctorate Fellow in Electrical Engineering
POLSON, FRANCES PAULINE, *M.A.*, J. Zehnter Fellow in German—I
POWELL, ELIZABETH WAPLES, *B.M.*, Wisconsin Scholar in Music
PRYOR, DEAN EARL, *B.S.*, Fellow in Plant Pathology

QUANTIUS, FRANCES WELLS, *B.A.*, Scholar in Economics
QUARLES, BENJAMIN ARTHUR, *M.A.*, Julius Rosenwald Fund Fellow in History
QUENZEL, CARROL HUNTER, *B.S.*, *M.A.*, Fellow in History

RADEWANN, MILTON GEORGE, *B.A.*, Dormitory Fellow
RAGAN, GEORGE LESLIE, *B.S.*, Wisconsin Alumni Research Foundation Fellow in Physics
RAINEY, JAMES LARIMER, *B.S.*, Industrial Fellow in Chemistry
RANNELLS, JESSIE MAY, *M.S.*, Fellow in Home Economics
RASHID, ROBERT GEORGE, *B.A.*, Ripon College Scholar
REHLING CARL JOHN, *M.S.*, Industrial Fellow in Soils
REID, FRANCES LUCILLE, *M.A.*, Honorary Scholar in French—I

ROSA, DELAPHINE GRACE, *Ph.M.*, Honorary Scholar in Agricultural Bacteriology
ROSE, FORREST HOBART, *M.A.*, Honorary Scholar in Speech—I
ROSENBERG, ALBERT ALLISON, *B.S.*, Fellow in Mechanical Engineering
DE ROSSET, ARMAND JOHN, *B.S.*, Wisconsin Alumni Research Foundation Fellow in Chemistry
ROWE, CHARLES ARTHUR, *B.S.*, Wisconsin Alumni Research Foundation Scholar in Chemical Engineering
RUPPENTHAL, ROLAND GERHARD, *B.S.*, *M.A.*, Dormitory Fellow
RUSCH, HAROLD PAUL, *B.A.*, *M.D.*, Jonathan Bowman Memorial Fund Fellow in Medicine

SAWITZKY, ANNE, *B.S.*, Wisconsin Scholar in Mathematics
SCHMID, ROBERT CARL, *B.A.*, Scholar in Sociology
SCHWENDIMAN, ALVIN *B.S.*, Wisconsin Alumni Research Foundation Scholar in Agronomy
SCHWINGER, JULIAN SEYMOUR, *B.A.*, Tyndall Traveling Fellow in Physics
SCOTT, EVAN JAMES, *B.A.*, Fellow in Comparative Literature
SHUMAN, JOHN RANDALL, *B.S.*, *Ph.M.*, Fellow in Genetics
SJOLANDER, NEWELL OSCAR, *M.S.*, Industrial Fellow in Agricultural Chemistry and Agricultural Bacteriology—I
SLOCUM, WALTER, *B.S.*, Fellow in Rural Sociology
SMITH, FREDERICK GORDON, *B.S.*, Wisconsin Alumni Research Foundation Scholar in Geology
SMITH, GEORGE WINSTON, *M.A.*, Fellow in History
SMITH, JOSEPH MARTIN, *B.A.*, *B.D.*, Day Fellow in Rural Sociology
SMITH, MARC JACK, *M.A.*, President Adams Fellow in History
SMITH, PAUL GORDON, *B.S.*, Wisconsin Alumni Research Foundation Scholar in Plant Pathology
SMITH, ROBERT MORRIS, *B.S.*, *M.A.*, Honorary Scholar in Poultry Industry
SNELL, ESMOND EMERSON, *M.A.*, Fellow in Agricultural Chemistry
SNURE, PAULINE, *M.A.*, Fellow in Botany
SNYDER, ARTHUR CLARK, *B.A.*, Dormitory Fellow
SORGE, ELLEN ROWE, *B.A.*, Wisconsin Scholar in Political Science
SORIANO, SANTOS, *Ph.D.*, Honorary Fellow in Agricultural Bacteriology—II
SPIEGEL, HANS WILHELM, *Dr. of Law*, Honorary Scholar in Agricultural Economics
STANNARD, ARTHUR FREDERICK BURKE, *B.E.*, Wisconsin Alumni Research Foundation Fellow in Electrical Engineering
STARK, IRENE ELSIE, *B.S.*, Wisconsin Scholar in Physiological Chemistry
STEVENS, RUSSELL BRADFORD, *B.S.*, Wisconsin Alumni Research Foundation Scholar in Botany
STEVENS, WILLIAM HERBERT, *B.S.*, Wisconsin Alumni Research Foundation Scholar in Medical Bacteriology
STEWART, BONNIE MADISON, *B.A.*, Wisconsin Alumni Research Foundation Scholar in Mathematics
STUDEBAKER, ANNABEL LORRAINE, Annie Gorham Fellow in Chemistry—II
STUTZMAN, JACOB WILLIAM, *B.S.*, Wisconsin Alumni Research Foundation Scholar in Physiology
SYLANDER, GORDON WILLIAM, *M.A.*, Mary M. Adams Fellow in English
SYRING, RUDOLF ALBERT, *M.A.*, Honorary Scholar in German

TARKOW, HAROLD J., *B.S.*, Fellow in Chemistry
TENNEY, MARY ALICE, *M.A.*, Mary M. Adams Fellow in English
TERWILLIGER, HERBERT LEE, *Ph.B.*, Dormitory Fellow

THATCHER, GEORGE WILSON, *B.S.*, Scholar in Economics—I
THIEMANN, AGNES DOROTHEA, *B.A.*, Wisconsin Scholar in History
THOMPSON, MARY GORDON, *B.A.*, Wisconsin Alumni Research Foundation Scholar in Botany
THORPE, VINCENT ASHFORD, *B.S.*, Fellow in Chemical Engineering
TOMLINSON, ALBERT SIDNEY, *B.S.*, Industrial Fellow in Dairy Industry
TOPPING, PETER WILLIAM, *B.A.*, Wisconsin Scholar in History
TRIMBLE, HAROLD CALLANDER, *M.A.*, Dormitory Fellow; School of Education Fellow—Mathematics

UNDERWOOD, ERIC JOHN, *Ph.D.*, Commonwealth Fellow in Agricultural Chemistry

VALIEN, MRS. BONITA HARRISON, *M.A.*, Julius Rosenwald Fund Fellow in Sociology
VALIEN, PRESTON, *B.A.*, *Ph.M.*, Julius Rosenwald Fund Fellow in Sociology
VAN GUNDY, JUSTINE, *M.A.*, Honorary Scholar in English—I
VAN LANEN, JAMES MARVIN, *B.A.*, Industrial Fellow in Plant Pathology
VINCENT, MRS. HELEN WHITGROVE, *M.S.*, Industrial Fellow in Agricultural Bacteriology
VIRGIN, WALTER JAMES, *B.S.*, Fellow in Plant Pathology—I
VITRANEN, REINO, *Ph.D.*, Albert Markham Traveling Fellow
VOIGT, WILBUR ROBERT, *B.E.*, *M.A.*, Fellow in Economics

WAISMAN, HARRY AARON, *M.S.*, Industrial Fellow in Agricultural Chemistry
WALETZKY, EMANUEL, *M.A.*, Fellow in Zoology
WATSON, MARJORIE, *B.A.*, Scholar in Mathematics
WEBER, JANET HELEN, *B.S.*, Industrial Fellow in Agricultural Chemistry
WENTWORTH, WILLIAM NORRIS, *B.S.*, Graduate Fellow, Dormitories and Commons
WEST, PHILIP MANTHORNE, *M.S.*, Wisconsin Alumni Research Foundation Scholar in Agricultural Bacteriology
WHITMAN, WARREN CHARLES, *M.S.*, Wisconsin Alumni Research Foundation Scholar in Botany
WIGGINS, FORREST ORAN, *M.A.*, Honorary Scholar in Philosophy
WINDEMUTH, NEVADA MARIE, *M.S.*, Fritzsche Brothers Fellow in Pharmacy
WOLFARD, JOHN ADDISON, *M.A.*, Fellow in Economics
WOOD, HERBERT JOHN, *M.A.*, Fellow in History
WORLEY, CLAIR LYNNETTE, *B.A.*, *M.S.*, Wisconsin Alumni Research Foundation Scholar in Botany
WORLEY, INGA SOLEY, *B.S.*, *M.A.*, School of Education Fellow—Botany

ZARKY, HILBERT PHILIP, *B.A.*, *LL.B.*, Fellow in Law
ZUFALL, CHALMERS JOSEPH, *M.S.*, Honorary Scholar in Pharmacy

FACULTY SUMMARY
1937-38

Rank	Men	Women	Total
President, Registrar, and Deans	11	1	12
Directors of Schools	3*	1 (1)	4 (1)
Professors	232 (8)	5 (1)	237 (9)
Associate Professors	116 (4)	24 (2)	140 (6)
Assistant Professors	159 (5)	56 (1)	215 (6)
Lecturers (Small part of time)	39 (3)	8 (2)	47 (5)
Clinical Associates (Small part of time)	4	0	4
Research Associates	11	2	13
Instructors	310 (10)	118 (10)	428 (20)
Assistants (Mainly half time)	395 (51)	90 (14)	485 (65)
Research Assistants (Mainly half time)	133 (17)	37 (4)	170 (21)
Clinical Assistants (Small part of time)	0	1	1
Totals	1,413 (98)	343 (35)	1,756 (133)

Numbers in parenthesis indicate faculty members who were here for only one semester either by appointment or because of resignation or because of leave for one semester. These numbers are included in the totals. Totals also include members on leave for the year as shown in the table below.

*All professors except the director of the Library School, who is a lecturer.

THE ABOVE TABLE INCLUDES:

a. Members of the instructional and research staffs at Madison.
b. Extension workers throughout the State, including the Milwaukee Center.
c. Administrative officers and librarians having the rank of any member of the instructional staff.
d. The following who were on leave for the entire year:

	Men	Women	Total
Professors	7	0	7
Associate Professors	1	0	1
Assistant Professors	1	1	2
Instructors	1	1	2
Totals	10	2	12

THE TABLE DOES NOT INCLUDE:

a. The following emeritus members of the faculty:

President	1	0	1
Deans	3	0	3
Professors	25	1	26
Associate Professors	1	1	2
Assistant Professors	1	3	4
Totals	31	5	36

b. The following persons without faculty rank:

Administrative staff	9 (1)	8	17 (1)
Hygiene Laboratory Staff	1	3	4
Library Staff	1	23	24
Research Specialists	5	0	5
School for Industrial Workers	6 (2)	2	8 (2)
State Geologist	1	0	1
Artist in Residence	1	0	1
Totals	24 (3)	36	60 (3)

c. Fellows and Scholars:

Fellows	127 (5)	21 (2)	148 (7)
Scholars	59 (11)	27 (3)	86 (14)
Totals	186 (16)	48 (5)	234 (21)

d. Teachers in Wisconsin Hgh School* 8 11 19

*Only those having no faculty rank and so not included in faculty summary.

PUBLIC LECTURES

ACADEMIC YEAR 1937-1938

1937

November 3-December 10—Myles Dillon—Eight Lectures on "Chapters of Irish Literature," given on Wednesdays and Fridays.
November 15—Giorgio Levi della Vida—"Arabic Literature and its Influence upon the Medieval Christian Civilization."
November 18—Walter A. Reichert—"Shakespeare and Gerbard Hauptmann."
November 30—Father Joseph Fletcher—"Organized Religion and Organized Labor."
December 2—Doro Levi—"Etruscan Art."
December 7 and 8—Father Robert A. Sromovsky—"Greek and Roman Music Notation;" "The Origin and Development of the Music Staff."
December 9—F. Yates—"The Use of Statistics in Experimental Biology and Agriculture."
December 16—José A. Balseiro—"Puerto Rico and the Puerto Rican 'Danza'."

1938

February 16—Morris B. Swadesh—"When and How do Languages Die?"
February 23-April 13, Wednesdays—Herman Ranke—Eight Lectures on "Religion and Art in Ancient Egypt."
February 24—E. H. Carr—"Great Britain Italy, and the Mediterranean."
February 25—John Shapley—"The Virgilian Tradition Through Twenty Centuries."
March 4—Alexander Goldenweiser—"The Three Problems of Culture."
March 8 and 10—Américo Castro—"Le Roman de la Rose."
March 9—James G. Heller—"The Jewish Idea of God."
March 17-April 21, Tuesdays and Thursdays—Padraic Colum—Ten Lectures on "Modern Irish Literature."
March 18—Dag Strömbäck—"The Family Sagas of Iceland."
March 25—J. O. Perrine—"Waves, Words, and Wires."
March 25—Roe-Merrill S. Heffner—"Structural Phonology."
March 28—William Martin—"Old Dutch Life on Old Dutch Paintings."
March 29—Lester D. Longman—"The Case Against Abstraction in Modern Art."
April 6—Vaclav Hlavaty—"New Algorithms in Differential Geometry of Projective Curved Spaces."
April 14—Edwin B. Place—"Great Literary Figures of Spanish America."
April 25—H. A. Krebs—"Recent Advances in the Intermediary Metabolism of Carbohydrates."
April 26—Majorie Daunt—"Present-Day Social Distinctions in English Speech."
April 27—Lindsey Blayney—"Germany of Today and Yesterday."
May 3—Oscar Morgenstern—"Recent European Thinking on Economics."
May 5—Werner Jaeger—"The Theology of the Early Greek Philosophers."
May 5—Moises Saenz—"Developments in Mexico."
May 10—Selig Perlman—"Collective Bargaining *versus* Revolution."
May 11—Alexander A. Vasiliev—"Spain and the Byzanitine Empire."

PART II—GENERAL INFORMATION

HISTORY AND GOVERNMENT

Historical Sketch—In the settlement of the pioneer regions of the United States, it very early became the established practice to set apart a share of the unoccupied land for the support of an institution of higher learning. Immigrants were thus assured that the opportunities of an advanced education would not be denied the children of the new community because the founders of it had ventured into the wilderness. This system, conceived in a spirit of statesmanship at once high and prudent, tended to draw an intelligent body of citizens into the region which was being settled, and to set at work forces which would be felt in the permanent elevation of the tone of public education. Thus in 1836, the first year of the territory of Wisconsin, steps toward the establishment of a university were taken by the territorial legislature. In 1839, the National Congress granted to the territory two townships of public land "for the use and support of a university"; and in 1848, when Wisconsin was applying for admission to statehood, provisions for the University were written into the constitution laid before Congress.

The State was admitted May 29, 1848; the necessary legislative acts providing for the organization of the University were approved July 26 of the same year; and the first Board of Regents met at Madison in October. The new State had nothing with which to endow the new institution but the unsettled land already granted to it. The Regents, therefore, had before them the choice of two courses—to sell the lands at low prices in competition with the other wild lands of the State, or to refrain from selling until the increase of population should have raised the value of the university property to a substantial amount. The one course would sacrifice the material endowment; the other would prevent the State from benefitting by the influence of the University in its formative years. The Regents wisely, as the history of the State has proved, determined to open the institution without delay. The financial operations that followed have been severely condemned, but there can be no question that the intelligent bounty of the state legislature has afforded the University a safer and far more generous support than the largest possible endowment that could have been secured by the conservative management of the land of the institution. Moreover, the direct dependence of the University upon the legislature has made it a part of the life of the State in an intimate way, and by making higher education a practical matter for all citizens, has performed a useful service as an element in raising political questions above a merely material plane.

The new institution began instruction in February 1849. It bore the name of a university, but had in operation only a preparatory school of twenty pupils, under the tuition of John W. Sterling, a graduate of Princeton, who bore the title of professor of mathematics. Professor Sterling gave a life of sacrificial devotion to the institution as it added to its academy a little college, and as the little college carried on its struggling and painful life. He was happy enough to live until the University began to assume proportions worthy of its ambitious name. The chancellor, John H. Lathrop, a graduate of Yale, called from the presidency of the University of Missouri, entered upon his duties in the autumn of 1849. He was a man whose plans were genuinely large and at the same time definite, but which were in the main never realized because of the paucity of funds. He insisted upon maintaining a solid classical course as the nucleus about which all possible future developments were to be gathered but which was never to be sacrificed to any other objects, however plausible they might seem and however much he desired to meet them. Under his administration (1849-1858) the faculty grew to seven members, and some

systematic instruction was given in modern languages, English literature, the art of teaching, and agriculture, as well as ancient languages, mathematics, and philosophy. The college was bitterly criticized. There was a feeling abroad, vague but insistent, that the University did not do for the community what it should. A "practical" education was wanted, without any clear idea of what a practical education might be, or how expensive the equipment for it must be. Chancellor Lathrop resigned, and after a few months, during which the well-known educational theorist, Henry Barnard, then in ill health, held the title of chancellor, the administration lapsed into the hands of the faculty, Professor Sterling presiding as vice-chancellor. The dark days of the Civil War followed. The professors lived on half pay. Many of the students took their places in the army, so that in 1864 no commencement exercises were held, since only one of the senior class was in residence.

The maintenance of the institution during these days of struggle had its important effect—a center and tradition were created. The material beginning of the University may fairly be said to be the grant under the Morrill Act (1862) for the support of a college of agriculture and mechanical arts "without excluding other scientific and classical studies." This noble statute bears evidence of the influence of the Civil War in that it made instruction in military tactics a condition of the continuance of the grant. The very smallness of the literary college perhaps made it the more natural to amalgamate the new institutions with the old, and thus give to the University of Wisconsin its peculiar character. In the state of Wisconsin all types of highest instruction, whether liberal, professional, or technical are given by the one institution. The Universiy of Wisconsin has accordingly a very great diversity of functions and a very complex organization. In this way unseemly rivalries among institutions of higher learning conducted by the State have been avoided and the conception of instruction within the University has been in some departments liberalized and in others elevated.

The reorganization of the institution after the acceptance of the Morrill grant was carried out under the vigorous presidency of Dr. Paul A. Chadbourne of Williams College (1867-1870). A department of agriculture and a college of law were established in 1868; steps were taken toward the acceptance of women students on an equality with men; and the legislature began, first of all to appropriate moneys to compensate for the impairment of the university fund, later resumed the responsibility of providing necessary buildings, and finally took the step of voting direct taxes for the support of the University. At the same time a system bringing the University into close relations with high schools in the State was organized. The presidency of Dr. John H. Twombly (1871-1874) followed that of Dr. Chadbourne.

The foundation of the University had now been laid, and the policy of including within it a group of technical and professional colleges, as well as a strong college of liberal arts, had been determined. During the presidency of Dr. John Bascom (1874-1887), the University was developed into a firmly organized and well equipped teaching institution, was brought into close and orderly relations with other public schools of the State, and was made a moral force in the lives of its students and of the community. Dr. Bascom found the recognition of coeducation halfhearted and ambiguous and made it distinct and complete. He found the income deficient, the buildings, the library, and the scientific apparatus inadequate, and the faculty too small for the proper division of the departments and the maintenance of high standards. In every point the institution was put on a sound basis. Buildings were erected and satisfactorily equipped, especially for the science departments. The library was enlarged and the faculty became a body of specialists, rather than a group of general teachers. Dr. Bascom more than any other man was responsible for the increase in income which made this progress possible, by the creation of a ratio tax, established in 1876 in the proportion of one-tenth mill to each

dollar of the property valuation of the State. Finally the free high schools, the establishment of which was promoted by the act of 1875, granting state aid to such institutions, were bound to the University by a system of accrediting their graduates on the one hand, and on the other by the recognition of the university degree as a qualification for a certificate to teach in the public schools of the State.

In the administration of Dr. Bascom's successor, Dr. Thomas Chrowder Chamberlin (1887-1892), a graduate of Beloit College, the strong college of Dr. Bascom began to grow into a true university. In all ways graduate work assumed a place as an active part of the institution. Scholars with the ideas of research brought from Johns-Hopkins or from Germany were added to the faculty. The first university fellowships were established. The degree of doctor of philosophy was offered. A reorganization into the Colleges of Letters and Science, Engineering, Agriculture, and Law, effected in 1889, testifies to the growing vigor and more distinctly understood aims of the professional and technical institutions. Intercollegiate debates and athletics and "student activities" began to be heard of, and in brief the tendencies which have resulted in the condition of the present day showed themselves definitely.

During the presidency of Dr. Charles Kendall Adams (1892-1901) these tendencies became dominant. A large armory and gymnasium was built. An athletic field was acquired—Camp Randall, the historic encampment where the Wisconsin troops were concentrated during the Civil War. The University became socially more complex. A dean of women was appointed. A school of music and a choral society were established. In every way the institution developed. The colleges of law and engineering grew rapidly, and had to be provided with new buildings. The fields of political economics, and social science, and of history were greatly strengthened. The University had become very definitely the recognized culmination of the public instruction of the State, and was resorted to in increasing numbers by graduates of the state normal schools. The institution was cramped for want of room, and though the increases in building and equipment were rapid, they barely kept pace with the enormous growth in the number of students. The crowning achievement of Dr. Adams' administration was the erection on university ground of a building to house, with the university library, the library of the State Historical Society—a reference library of great value, and in some respects unique. The improvement of the facilities placed at the service of the University by the opening of the library which took place in 1900, marks an epoch in the history of the institution.

Dr. Adams' health failed in 1900; and from that time to 1903, with but a few weeks of interruption, Dr. Edward Asahel Birge, for many years a member of the faculty and then Dean of the College of Letters and Science was acting president. Throughout the entire period the increase in enrollment and the corresponding development of the work of the institution went on uninterruptedly.

Charles Richard Van Hise, professor of geology, was the first alumnus of the University to be called to the presidency, which he assumed in 1903 and occupied until his death on November 19, 1918. The material progress of the institution continued under his administration. The College of Agriculture became an important college, as well as an institution of research. A course in home economics was created; the first two years of a medical course were given. Courses in journalism, in chemistry, and for the training of teachers were established, while the older School of Commerce continued to thrive. Lagging somewhat behind these advances, have come the material provisions for them, so that the University remains crowded. The mere enumeration of the newly organized courses illustrates the fact that during the administration of President Van Hise, the tendency of the University to accentuate professional equipment rather than a liberal culture suffered no abatement.

At the same time, the work of the department of the humane arts and the pure sciences constituted the largest single part of the activity of the University and the opportunity and the ideal of liberal culture were maintained with energy.

The World War made a deep impress upon the life of the University. In such a national crisis an institution of higher learning manifests its ideals mainly through the response of those who have received its training and imbibed its spirit. The University fostered the ability and encouraged the desire of its faculty, alumni, and students to be of directly active use to their country, an ability and a desire which have been abundantly manifested. For the alumni it could do little directly, but it has carefully preserved the record of their services as a memorial to the future. To the members of the faculty called to war work, it granted leaves of absence on generous terms. The total number of faculty, alumni, and students in active military service was approximately 10,000 men.

The signing of the armistice did not terminate the University's connection with the war, for many students and not a few of the professors remained in the service in the war zone, or in the army's educational schools, or aided the American Commission in the manifold duties of settling the terms of the Peace of Versailles. In all the labors of war and of the coming peace, President Van Hise was untiringly active, and his death, a few days after the armistice, was in truth another sacrifice which the Great War imposed upon the University.

In January 1919, Edward Asahel Birge, who had been Dean of the College of Letters and Science since 1891, was elected President of the University. The issues which confronted his administration were especially heavy and complicated. They involved numerous scholastic questions and also many difficult financial problems, raised by the phenomenal increase in attendance after the war and by the concurrent increase in the cost of living and building, which came at a time when business of nearly all kinds was beginning to suffer the inevitable check which followed the peace. Partial solutions were found for these problems until a special session of the legislature, in May 1920, granted the necessary funds for operation and enabled the University to place salaries on a satisfactory basis. Toward the close of President Birge's term and under his inspiration, regents, faculty, legislature and state had united to ensure the future of the University. Other results of his administration, which helped to initiate the post-war development of the University were the securing of a modest but promising annual research fund; the enlargement of the medical course to the full four years; the erection of the Wisconsin General Hospital, which is administered by the Medical School; and the resumption of building operations in the University, made possible by the legislature of 1925.

Glenn Frank, editor of *The Century Magazine*, succeeded Dr. Birge upon the retirement of the latter in 1925, and held the office of President until the close of the academic year 1936-37, when he was succeeded, after a short acting presidency by Dean Sellery of the College of Letters and Science, by Dr. Clarence A. Dykstra of Cincinnati. The achievements of the University under the presidency of Dr. Frank will in due course form a part of this brief record.

PLACE IN THE EDUCATIONAL SYSTEM—The University of Wisconsin is the culmination of the free educational system of the State. In the educational policy of the State, the University is related to the high schools as are the high schools to the primary and grammar schools. It is not expected that all pupils who complete the grammar grade 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 advancement from one step to another as easy and natural as possible. The University encourages its teachers and advanced students to engage in research, including learning, investigation, and the application of scientific knowledge to the arts of life. Its largest work is to disseminate knowledge through the systematic discipline of organized courses to resident students, both in liberal and professional study. In addition, the University, through an extension division organized upon the broadest basis, assists those, who for any reason cannot become resident students to enjoy the benefits of its facilities and equipment, with the fewest possible restrictions.

SUPPORT—The University is supported partly by appropriations from the State, partly by student fees and miscellaneous direct receipts, partly by the income of federal grants, and to a slight extent by private gifts. State appropriations account for somewhat more than one-half of the total annual income of the University. Several departments, such as dormitories and commons, intercollegiate athletics, University Theatre, and Wisconsin Union, are self-supporting. Except for a small allotment for instruction, federal grants to the University are restricted almost entirely to agricultural extension and research. In general the private gifts are limited to specific purposes such as scholarships, fellowships, or definite research problems.

Gifts which have recently come to the University include a sum of $10,000 provided in the will of M. W. McArdle, deceased, of Chicago, and for a division of the residue of his estate between his brothers and sisters and the University of Wisconsin for study and research work as to the causes, prevention and cure of cancer. The amount to be received from residue is estimated at from $50,000 to $60,000.

One-third of the residue of the estate of Carl Landsee, deceased, of Milwaukee, Wisconsin, estimated at $4,000, is allotted by the executors of the will to the Board of Regents of the University of Wisconsin for the benefit of the German Department, including the maintenance and development of the German House conducted by the German Department.

Recently the University has received a gift of $15,000 from Louis Garttner of the Gardner Baking Company of Madison for the purchase of 190 acres of land as an addition to the Arboretum.

GOVERNMENT—The government of the University is vested in the Regents, who possess all the powers necessary to accomplish the objects of its establishment and to perform the various duties prescribed by law. The Regents, appointed by the Governor of the State, include one member from each of the ten congressional districts, and four from the state-at-large, of whom two shall be farmers and two shall be from the manual trades. At least two of the members shall be women, and the President of the University and the Superintendent of Public Instruction are *ex-officio* members. The Regents appoint all administrative officers and faculty members, and all faculty rules regarding the government of students are subject to their approval.

The university faculty exercises authority, subject to the approval of the Regents, in all matters relating to educational policy, scholastic standards, and, in general, the relation of students to the University. All members of the staff of instruction with the rank of assistant professor or above constitute the governing faculty; other members of the staff of instruction have a voice but no vote at all meetings of the university faculty, with the exception of executive sessions. The faculty of each college, school or division is similarly organized for the purpose of administering matters relating solely to its own unit of organization.

PUBLICATIONS OF THE UNIVERSITY

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

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

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

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

THE CAMPUS

By the provisions of the Constitution of the state of Wisconsin, the University must be located at or near the state capitol, afterwards fixed at the "village of Madison." The founders of Madison intelligently adapted the original plan of the city of Washington to local conditions, selecting an eminence in the center of the city for the site of the capitol, and laying out radial thoroughfares approaching it so that it closes the vista from every direction. A mile to the west, at the end of one of these radial streets, on a second elevation rising abruptly to a height of more than a hundred feet above the shore of Lake Mendota, the principal building of the University was erected, thus closing the view from the capitol in that direction.

The earliest buildings to be erected on the campus were North and South Halls (1851, 1855), which contained for some years not only all the classrooms and offices of the University, but also the living quarters of both faculty and students. These twin buildings, remodeled in recent years, now house the departments of mathematics, journalism, and political science, and several administrative offices. Rapid increase in enrollment soon resulted in the erection of University Hall (1857), since renamed Bascom Hall, which at once became and has always remained the center of the University. This building, originally constructed in the simple and dignified modification of classical renaissance architecture accepted in America since colonial times, has been twice added to (1900, 1906), and has recently (1927) undergone further enlargement in conformity with farsighted plans for symmetrical expansion. In Bascom Hall are located the principal educational administrative offices of the University and the classrooms and offices of several of the departments of instruction in liberal arts subjects.

From Bascom Hall a broad open plaza bordered by elms—the upper campus—sweeps downward in the direction of the capitol. Along one side

are North Hall, the Engineering Building (1901, 1910), and Science Hall (1888), back of which is Radio Hall, and near the lake shore, a number of the special buildings of the College of Engineering; on the opposite side are situated the Biology Building (1910), South Hall, the Law Building (1893), and Music Hall (1879), flanked by the group of women's buildings, including the two dormitories, Chadbourne Hall (1871) and Barnard Hall (1912), and the gymnasium, Lathrop Hall (1909). Back of Bascom Hall, at the base of the hill, are the Chemistry Building (1905, 1912, 1928) and Sterling Hall (1916), in which are housed the departments of physics, economics, and sociology. To the north and rear of Bascom Hall, overlooking the lake, is the Carillon Tower (1934) housing 25 bells, the memorial of several graduating classes.

The lower campus, a flat area encroaching upon the old residential district of the city, is still in an early stage of development. Here, at the lake's edge, stands the combined men's gymnasium and armory (1894) adjacent to which are the boat houses and an open field used for a parade ground and for certain types of athletic exercises. Close by is situated the most stately of all the buildings on the campus, the Library (1900, 1912), an edifice of Bedford limestone with a colonnade and terrace of great beauty and dignity. In a grove of oaks and elms toward the lake from the library stands the Memorial Union Building (1928), "erected and dedicated to the memory of the men and women of the University of Wisconsin who served in our country's wars." Among the features of this building are a large refectory, several dining rooms, recreation rooms, quarters for student publications and other undergraduate activities, and lodgings for transient alumni. The Y. M. C. A. dormitory, the University Club building, and the Administration Building, headquarters of the business organization of the University, are also located in the lower campus district.

Westward from the main group of buildings are situated the University Extension and Home Economics Building (1912), Washburn Observatory (1878), the medical group, the Wisconsin High School (1913), and, extending for some distance beyond these, the numerous buildings and experimental plots of the College of Agriculture, including barns, greenhouses, and a large judging pavilion (1908) containing an oval amphitheater with a seating capacity of two thousand. The medical group consists at present of the Wisconsin General Hospital (1924), the Service Memorial Institutes building (1928), the Bradley Memorial Hospital (1918), the Infirmary (1918, 1931), the Nurses' Dormitory (1925), and the Orthopedic Hospital for Children (1931). On the lake shore back of the principal agricultural buildings is a group of men's dormitories, Adams Hall, Tripp Hall, and the Refectory (1926), near which are located the intramural athletic fields for men.

South of the agricultural campus lies the forty-two acre tract known as Camp Randall, the north portion of which has been set aside as the new site for the College of Engineering; the present buildings include the Mining and Metallurgy Building (1909) and the Mechanical Engineering Building (1920, 1931). The former building housed the Forest Products Laboratory until 1932. The south part of the area is dominated by the Men's Field House (1930) and a large concrete stadium, with adjacent playing fields for men. Memorial Park, the women's field house and playing fields, tennis courts, and storehouses occupy the rest of the Camp Randall area.

In 1932 the Forest Products Laboratory was completed by the Federal Government on a tract of land one half mile to the west of the Dairy Barns of the College of Agriculture. Built of gray stone in the modern step back style this structure dominates the western edge of the campus.

Spread for nearly a mile along the crest and on the slopes of an irregular ridge, bordering the southern shore of the largest of Madison's four lakes, the grounds of the University are of marked natural beauty and afford

many rare views out over the broad expanses of water, farm lands, and city dwellings. Of special attraction are the many choice groups of evergreens, the rows of towering elms, and the willow drive fringing the lakeshore. The lake itself provides unexcelled facilities for swimming, boating of all sorts, and, during the late winter, skating, while the hills make possible two other forms of winter sports not everywhere common, skiing and tobogganing.

The grounds have a special archaeological interest because of the presence of several Indian effigy mounds which are found in abundance in and near Madison. These are small mounds of earth in the form of animal and other totems, made by the Winnebago and allied native tribes in prehistoric periods, unique in being found only in southern Wisconsin and along the boundaries of the states to the west and south.

LIBRARIES

The libraries at Madison, all of which are at the service of members of the University, are six in number, viz., the Library of the University of Wisconsin, the Library of the Historical Society of Wisconsin, the Library of the Wisconsin Academy of Sciences, Arts, and Letters, the State Law Library, the Legislative Reference Library, and the Madison Free Library. These libraries duplicate books only to supply exceptional demands, and have an effective strength approximately equal to the whole number of volumes possessed by them. The total number of bound volumes in all the libraries is about 1,010,000 and the number of pamphlets exceeds 400,000.

The first three libraries above named are housed on the university campus in the library building of the State Historical Society. In the south half of the first floor are located three departmental libraries of the Historical Society, viz., documents, newspaper files, and maps and manuscripts. In the north end of this floor is a series of six seminary rooms, allotted to American history, European history, economics, 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 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 portions of both libraries are stored in the stack wings adjoining the delivery rooms on the west. University staff members 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 subjects of philosophy and education, classics, and modern languages and English. The museum and gallery of the Historical Society occupy the fourth floor. During the academic year, the library is open fourteen hours daily, except on Sundays and legal holidays.

A large reserved book reading room in the basement of Bascom Hall is open at the same hours as the Library during the academic year. The agricultural, engineering, law, medical, astronomical, biological, chemical, and geological libraries are located in their respective buildings.

The Library of the University of Wisconsin, including its branches, contains about 443,300 volumes and 80,000 pamphlets. The catalogue is the usual dictionary card catalog of authors, subjects, and titles in one alphabetical arrangement. Subject to certain restrictions, books may be drawn by all members of the University. Every student of the University, matriculated

for the regular year, is required to make a library deposit of $2.00. This deposit, less charges for fines and damages, is returnable to the student by the cashier upon graduation or earlier withdrawal from the University.

The Library of the State Historical Society contains 296,300 volumes and 322,500 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, comprising about 6,000 volumes, is a valuable collection of reports and transactions of learned societies. It is located in the library building and constitutes a useful supplement to the other libraries in this special field.

The Legislative Reference Library in the Capitol numbers 75,000 volumes, pamphlets, and collections of clippings. This library collects information on all subjects of legislation, but the material is chiefly in the field of political science and economics. The State Law Library, also in the Capitol, numbers about 99,250 volumes. Students are allowed to draw books from the Madison Free Library, a collection of 121,750 volumes.

GENERAL ACADEMIC REQUIREMENTS

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

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

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

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

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

POINT-CREDIT RATIO. The general quality of a student's work over a number of semesters is expressed in terms of a point-credit ratio, which is the result obtained by dividing the total number of points he has earned by the total number of credits earned. The highest possible quotient is 3.0, which represents a grade of A in every subject; the lowest possible quotient is zero.

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

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

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

COURSES AND DEGREES

TITLES

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

FIRST DEGREES

BACHELOR OF ARTS—Granted in General Course and Course in Commerce
BACHELOR OF ARTS (Humanities)
BACHELOR OF ARTS (Journalism)
BACHELOR OF LAWS
BACHELOR OF MUSIC
BACHELOR OF PHILOSOPHY—Granted in General Course and Course in Commerce

BACHELOR OF SCIENCE (Agriculture)—Four-Year Course
BACHELOR OF SCIENCE (Agriculture and Education)
BACHELOR OF SCIENCE (Art Education)
BACHELOR OF SCIENCE (Chemistry)
BACHELOR OF SCIENCE (Chemical Engineering)
BACHELOR OF SCIENCE (Civil Engineering)
BACHELOR OF SCIENCE (Education)
BACHELOR OF SCIENCE (Electrical Engineering)
BACHELOR OF SCIENCE (Home Economics)
BACHELOR OF SCIENCE (Home Economics and Education)
BACHELOR OF SCIENCE (Hygiene)—Five-Year Nursing Course
BACHELOR OF SCIENCE (Mechanical Engineering)
BACHELOR OF SCIENCE (Medical Science)
BACHELOR OF SCIENCE (Medical Technology)
BACHELOR OF SCIENCE (Metallurgical Engineering)
BACHELOR OF SCIENCE (Mining Engineering)
BACHELOR OF SCIENCE (Pharmacy)
BACHELOR OF SCIENCE (Physical Education)

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

ADVANCED DEGREES IN THE GRADUATE AND PROFESSIONAL SCHOOLS

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

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

HONORS AND PRIZES

SOPHOMORE HONORS. Sophomore honors and high honors are awarded on the basis of a minimum of two full years' work, not less than 60 credits, completed in residence at the University. A student earning during these two years 135 grade-points, plus 1½ grade-points for each credit above 60 required in his course, will be awarded Sophomore Honors; a student earning during these two years 165 grade-points, plus 2 grade-points for each credit above 60 required in his course, will be awarded Sophomore High Honors.

SENIOR HONORS. Senior honors and high honors are awarded on the basis of the academic requirements for the second half of any four-year course with the exception of courses in engineering. The regulations governing senior honors for the College of Engineering are given on page 242. A student earning 135 grade-points, plus 1½ grade-points for each credit above 60 required in his course for completing the second half, will be awarded

Senior Honors; a student earning 165 grade-points, plus 2 grade-points for each credit above 60 required in his course for completing the second half, will be awarded Senior High Honors. Any student who has been permitted to carry more than the minimum number of credits during the first two years of his course and less than the minimum during the last two years, will not thereby be barred from securing senior honors.

THESIS HONORS. Senior thesis honors are awarded at commencement to students who have written exceptionally fine or original theses, without reference to their other work.

THE ALPHA KAPPA DELTA PRIZE. Awarded for the best undergraduate essay submitted in the field of Sociology and Anthropology.

BRYAN PRIZE FUND. In 1899 William Jennings Bryan presented $250 to the University, the income to be used as a prize for the best essay on *The Science of Government*. Unused income has been added annually to the principal, which now amounts to $650. Awarded in 1937 to Norman Irving Wengert.

SALMON W. DALBERG PRIZE. A gift of $1,000 was received from Mrs. Julia Dalberg Bower and Miss Frieda Dalberg, to establish a trust fund in memory of their brother Salmon W. Dalberg, deceased. The income is assigned each year to an honor student in the graduating class of the Law School. Awarded in 1937 to Albert Francis Neuman.

KENNETH STERLING DAY MEMORIAL. Awarded each year to a senior man on the basis of moral character, scholastic attainment, and participation in campus activities. Awarded in 1937 to Donald Robert Heun.

EDNA KERNGOOD GLICKSMAN PRIZE. Awarded each year to a senior woman who has been outstanding in intellectual attainment and has been an example of initiative, resourcefulness, and unselfish devotion to high purpose. Awarded in 1937 to Elizabeth Ransom and Lucille Ransom.

THE THEODORE HERFURTH EFFICIENCY PRIZE. Mr. Theodore Herfurth, of Madison, has offered a prize of $100 to a senior male student who shows greatest evidence of initiative and efficiency. In 1937 the award went to Paul William Schuette.

LEWIS PRIZE. In 1865, Governor James T. Lewis gave $100 and in 1866 another $100 to constitute a fund the income of which was to purchase an annual scholarship medal. In 1873, with the consent of the donor, it was decided to use the income as a prize for the best undergraduate essay. By 1905 the fund had grown to over $300 and the Regents in recognition of this having been the first permanent endowment given to the University, established the "Lewis Prize," consisting of $25 annually. Any deficiency in the income of the fund, which now amounts to about $800, is to be paid from the general account of the University. The prize is awarded to that member of the freshman class taking full work and regularly enrolled in freshman English who shall write the best theme, under conditions determined by a committee of the instructors in English 1. The prize for 1937 was awarded to Morris A. Friedman.

MITCHELL MEDAL. In June, 1921, Mr. William M. Chester of Milwaukee offered a gold medal in memory of John Lendrum Mitchell, a member of the Class of 1917 who lost his life while serving as an aviator in the American Expeditionary Force in the World War, the medal to be awarded annually

for the best essay on industrial relations. The medal for 1937 was awarded to Hugh David Ingersoll.

WILLIAM F. VILAS MEDAL AND PRIZE FUND. In 1910-11 and again in 1911-12, Anna M. Vilas gave $125 for medals for intercollegiate debating and oratory. In June, 1912, to make this annual gift permanent, 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. The Department of Speech has charge of the administration of these prizes. Second: Two cash prizes for essays—one of $50 and one of $25 to be known as the William F. Vilas Prizes for Essays. The English Department annually posts on various bulletin boards the conditions of competition. The prizes for 1937 were awarded to Edwin Q. Honig and Louis W. Sidran and the medals to Margaret Lounetta Baker, John Nathan Eisendrath, Robert Gray Gunderson, Cyril Francis Hager, Samuel Mintz, Marie Elizabeth Muth and Edwin Mitchell Wilkie.

WESTERN INTERCOLLEGIATE MEDAL. This award is made annually in each institution belonging to the Western Intercollegiate Conference Athletic Association, to the senior in that institution whose scholastic and athletic ability is outstanding. At Wisconsin the winner is selected by the Athletic Council upon nominations of the Athletic Board. In 1937 the recipient of the honor was Leonard Lewis Lovshin.

WISCONSIN ALUMNI ASSOCIATION AWARDS. The Alumni Association awards annually two prizes of $100 to an outstanding junior man and woman. Awarded in 1937 to Horace White Wilkie and Martha Hall Forster.

STUDENT EXPENSE

UNIVERSITY CHARGES

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

TUITION. No tuition is charged to residents of Wisconsin except in the Library School* ($25 per semester for residents and $50 for non-residents), and the Wisconsin High School ($8 per quarter for residents and $15 for non-residents); a fee of $100 per semester is charged to students who are non-residents of this State (see exemptions below).

The following students are exempt from non-resident tuition:

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

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

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

*It is likely that the Library School will be transferred to the jurisdiction of the University before the opening of the 1938-39 school-year and a change may be made in the tuition as a result of the transfer.

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

NON-RESIDENT TUITION. The regular non-resident tuition is $200 per academic year, or $100 per semester.

The Regents of the University, acting under the provisions of Section 36.16 (c) Laws of Wisconsin, 1937, have established, as an experiment for the academic year 1938-39, the following departures from the standard $200 annual non-resident tuition, *for students who are residents of other states maintaining a university*:

That the annual fee be reduced from $200 to (a) the reciprocal fee (the fee charged by the other state university to Wisconsin residents), if the reciprocal fee is less than $200, or (b) to $100, whichever is higher,

For Undergraduates

(1) who have had at least one year's work on full programs at the University of Wisconsin, and

(2) have earned a scholastic average of two or more grade-points per credit on full programs during their last year at the University of Wisconsin; and

For Law, Medical, and Graduate Students

(1) who enter the University of Wisconsin from accredited institutions with a scholastic average of two or more grade-points per credit on all their work at the other institutions; or

(2) have made a scholastic average of two or more grade-points per credit (or its equivalent in the case of the Law School) in their last year's work on full programs at the University of Wisconsin; provided, that any subsequent work at other accredited institutions has been of like quality.

FEES AND DEPOSITS. Each student is required to pay a general fee of $27.50 per semester, covering incidentals, infirmary service, Memorial Union membership, registration and use of the gymnasium. Students who are paid-up life members of the Memorial Union are entitled to a deduction of five dollars from the general fee. See Summer Session and College of Agriculture for special fees charged in these divisions. The laboratory fees and deposits charged in the various subjects are stated in the announcements of the Departments of Instruction. A library deposit of $2.00 is required of each student when he first matriculates. A fee of $5.00 is charged for each graduation, payable at the beginning of the semester in which the student expects to complete the residence requirements for his degree or degrees. A professional fee is required of students registered in the Schools of Law and Medicine: $12.50 per semester in Law and $25 per semester in Medicine. Students registered for the degree of Bachelor of Music are also required to pay a professional fee of $30 per semester which entitles the student to one private and one class lesson per week in applied music. Fees are not refundable, except as specified below under Refunds; deposits cover loss of or damage to equipment and are refundable in whole or in part.

PAYMENT. All fees must be paid at the beginning of each semester. Until this has been done, the student is not matriculated and is not entitled to

attend classes. A fine of three dollars ($3.00) is charged for late registration, applicable to all students paying fees after regular registration days, with no exemptions for any reason. The cashier is required not to accept fees from any student who does not pay promptly after his registration card is issued.

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

Students entering after half a semester or term has elapsed shall pay half of the prescribed fees, excepting that graduate students who enter on May 15 or later may register on the pre-summer session basis, paying the prescribed infirmary and Union fee and the regular weekly rate.

REFUNDS. The cashier, upon recommendation of the Registrar, is authorized to make refunds of semester tuition and fees (excepting the registration fee which is not refunded) on the following basis to students withdrawing from the University: withdrawal without attending classes 100%; withdrawal within two weeks from the first day of instruction, 80% refund; within four weeks, 60%; within six weeks, 40%; within eight weeks, 20%; after eight weeks, no refund. Students entering after regular registration days and withdrawing within eight weeks from the first class day will, upon recommendation of the Registrar, be allowed refunds according to the above schedule based on the time actually in residence. No claim for remission of fees will be considered unless such claim be presented during the fiscal year to which the claim is applicable. No fees are refunded in case a student is suspended for disciplinary reasons.

GRADUATE STUDENTS. In general, graduate students are required during the regular year to pay the same fees as are undergraduates, with the following exceptions: (a) instructors, and graduate teaching and research assistants are exempt from laboratory fees taken in the department in which they hold appointments, and, unless otherwise specified in the appointment, from the non-resident tuition*; (b) fellows and scholars are exempt from the non-resident tuition and from laboratory fees in courses taken either in the department in which they hold appointments or in the department in which they major; (c) honorary fellows and honorary scholars are exempt from the non-resident tuition and from the incidental fee of $12; honorary fellows, in addition to these exemptions, are exempt from payment of laboratory fees; (d) members of the teaching and research staff of the University not designated above, members of the State Geological and Natural History Survey, members of the technical staff of the Forest Products Laboratory, staff members of the United States Department of Agriculture stationed at the University and engaged in research, technical experts employed in any department of the state government, and officers of the United States Army detailed as students by proper authority are exempt from the non-resident tuition fee. The registration, physical education, infirmary and Union fees are required of all students.

When any candidate for a higher degree holding an appointment listed in the preceding paragraph shall have paid to the University as a graduate student seven semester or summer session fees, he shall be exempt from further payment of the incidental portion of the general fee but not from the

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

registration, physical education, infirmary or Union fees, in both the regular and the summer sessions, as long as he shall continue to hold such official appointment. In the administration of this rule, one but only one, nine-week summer session fee or its equivalent may be counted as two of the seven fees above mentioned; also the full amount of any prescribed fee shall be charged. A maximum of two semesters may be credited from other schools as two of the seven fees.

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

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

SELF-SUPPORT

The University Student Employment Bureau is maintained to assist men and women students who are partly or wholly self-supporting during their attendance at the University.

More than half of the students at the University of Wisconsin must depend upon themselves for part or all of their resources. A number work only in the summer; others borrow and do not attempt to work while in school; many are employed part-time while they attend the University.

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

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

Since February 1934 the Federal Government has provided funds for a National Youth Administration program. This program enables the University to give part-time employment during the regular school year to a number of needy students who have earned, on the average, $15 monthly. Federal regulations for the 1937-38 school year limited the program to students who were between 16 and 24 years of age inclusive. Those who are interested in the possibility of obtaining NYA employment are advised to communicate with the University Registrar.

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

men and technical workers. Much of this work is temporary, but it frequently results in permanent part-time employment for the student who gives thorough, willing and dependable service.

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

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

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

Upon arrival in Madison, students in need of work should apply to the Student Employment Bureau, Memorial Union Building, where an effort will be made to help them in any way possible. Working students may obtain copies of regulations which govern student wages and hours at the bureau.

SUMMARY OF EXPENSES

Although it is difficult to give a definite set of figures which would be applicable to the "average" student, the following table may suggest the expenses which various classes of individuals might incur during a single academic year, exclusive of clothing, transportation to and from Madison, and non-resident tuition fee.

	Lowest	Average	Highest
Board	$190	$255	$320
Laundry* (if mailed home)	10*	35	60
Sundry personal expenses	40	100	250
Room rent—			
Men's dormitories	96	120	166
Women's dormitories	96	120	126
Double room, per person	90	115	170
Single room	110	160	210
Fees, textbooks, etc.	75	135	210
	$405**	$645	$1,050

**Based on price levels in the spring of 1938 and subject to change.

LOAN FUNDS AND UNDERGRADUATE SCHOLARSHIPS

Information relative to loans and scholarships may be obtained from the Secretary of the Committee on Loans and Undergraduate Scholarships, except as specifically noted in the following paragraphs:

WISCONSIN HIGH SCHOOL SCHOLARSHIPS—Each scholarship is equivalent in value to the freshman general fees ($55). They are distributed annually,

beginning with those graduating after April 22, 1936, to graduates of Wisconsin Public High Schools and accredited private secondary schools whose parents or guardians are residents of Wisconsin. The number of scholarships from each school will be determined by the number enrolled, in the following manner: schools enrolling under 250, the student ranking first in scholarship; schools enrolling from 250 to 750, the two students ranking first and second in scholarship; schools enrolling 750 or more, the three students ranking first, second and third in scholarship. The scholarship is available only during the year immediately following graduation from high school. Applications for these awards should be filed with the Registrar before September first.

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

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

CLASS OF 1936 MEMORIAL SCHOLARSHIP FUND—The income of a $1700 trust fund awarded annually.

AMELIA E. H. DOYON SCHOLARSHIPS—Two scholarships provided from the income of a $5,000 trust fund, to be given to young women who have been in attendance at the University of Wisconsin for at least one year; selections to be made by the faculty on the basis of scholarship and financial need.

WILLIAM J. FISK SCHOLARSHIP—Income from a $6,000 trust fund to be awarded annually to one or more worthy students.

KOHLER FAMILY SCHOLARSHIP FUND—These scholarships were endowed by the Kohler family, of Kohler, Wisconsin, and were created to encourage attendance at the University by deserving graduates of the public high school of the village of Kohler whose intention it is to complete a four-year course.

HARRIET SAUTHOFF KRONCKE SCHOLARSHIP FUND—For students interested in the advanced study of German. Awards are approved jointly by the Committee on Loans and Undergraduate Scholarships and the Committee of the Department of German.

FANNIE P. LEWIS SCHOLARSHIPS—The annual income from a $10,000 trust fund divided equally between two women students, on the basis of scholarship and need of financial assistance. To be selected by the Regents on the recommendation of the faculty.

LA VERNE NOYES SCHOLARSHIPS—For students who have participated in the Great War, or for the children of veterans. The scholarships are applicable, in whole or in part, to the tuition plus laboratory fees and are of a limited number. Applications should be made by September first.

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

EVA S. PERLMAN MEMORIAL SCHOLARSHIP—$50 for women students majoring in the Department of Economics, to be awarded on the basis of scholarship and financial need.

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

HARLAN B. ROGERS ATHLETIC SCHOLARSHIP—The income of a $5,000 trust fund, awarded annually to a male student in one or more of the recognized branches of competitive athletics. The donor requested that candidates take at least one subject of instruction which deals principally with the problems of government.

SIVYER EDUCATIONAL FUND—Income from $40,000 for an annual award of at least two scholarships, to be designated as the Sivyer Scholarships, to worthy and deserving students in the University of Wisconsin.

CHRISTINE MARGARETHA STEENBOCK FELLOWSHIP—Endowed by a gift of $7,000 from Professor Harry Steenbock and his sister, Mrs. Robert Bruce Brinsmade, in honor of their mother, to establish a fellowship for seniors in Home Economics. Recipient of the fellowship to be selected from a list of candidates recommended by the Department of Home Economics, in conjunction with the committee on awards.

HENRY STEENBOCK FELLOWSHIP—Endowed by a gift of $7,000 from Professor Harry Steenbock and his sister, Mrs. Robert Bruce Brinsmade, in honor of their father, to establish a fellowship for seniors in Agriculture. Recipient of the fellowship is selected by the College of Agriculture Committee on Fellowships and Scholarships in conjunction with the senior members of Alpha Zeta.

CHRISTIAN R. STEIN STUDENT AID FUND—The income of a $1,000 trust fund awarded annually by the faculty to a student who has been in attendance for at least one year.

J. STEPHENS TRIPP SCHOLARSHIP—The income of a $10,000 trust fund awarded annually to a student, graduate or undergraduate, from Sauk County, Wisconsin.

MARTHA GUNHILD WEEK SCHOLARSHIP—The income of a $5,000 trust fund, awarded annually to a woman undergraduate in chemistry who shall be recommended to the Regents by the faculty of the Chemistry Department.

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

LOANS

The loans made by the University of Wisconsin are for emergency purposes only, inasmuch as the funds are not large enough to permit sustaining loans to be made.

Recipients of loans from the University are required to respond promptly to communications from the Secretary of the Regents. By Regent action, "A student's diploma shall be withheld and all requests for official transcripts

or information regarding his record shall be denied until either payment or satisfactory arrangement for payment of loans from the student loan funds be made with the Secretary of the Regents. A student in residence who has, for thirty days or more, ignored statements regarding his loan shall be excluded from classes until he has made satisfactory arrangements regarding it with the Secretary of the Board of Regents."

Unless otherwise indicated below, applications for loans should be made to the Secretary of the Committee on Undergraduate Loans and Scholarships.

STATE UNEMPLOYMENT STUDENT LOAN FUND—

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

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

ALPHA EPSILON PHI LOAN FUND—For loans to responsible scholastically meritorious women students. Upperclass students in the College of Letters and Science are given preference.

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

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

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

CLASS OF 1885 LOAN FUND—For men and women students.

CLASS OF 1912 LOAN FUND—For men and women students.

CLASS OF 1913 LOAN FUND—For men and women students.

CLASS OF 1914 LOAN FUND—For men and women students.

CLASS OF 1916 MEMORIAL LOAN FUND—For men and women students.

CLASS OF 1934 LOAN FUND—For senior men and women students.

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

EMERY LOAN FUND—For needy women students.

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

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

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

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

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

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

GRADUATING CLASS LOAN FUND—Available for men and women students.

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

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

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

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

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

KUPPENHEIMER LOAN FUND—For men students; joint signatures of responsible parties required.

LAKE MONONA WILD LIFE SANCTUARY LOAN FUND—For loans to worthy students; preference to be given to Indian students.

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

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

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

PHARMACY LOAN FUND—Income from this fund to be loaned to students in Pharmacy, preference to be given to women students. (W.O.N.A.R.D.)

PHI BETA LOAN FUND—For graduate students of high character and attainment.

PHI DELTA GAMMA LOAN FUND—For women students who have been regularly admitted to the Graduate School, preference to be given to members of Phi Delta Gamma.

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

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

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

ALEXANDER H. ROGERS LOAN FUND—For men and women students; joint signatures of responsible parties required.

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

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

ISRAEL SHRIMSKI LOAN FUND—For men and women students.

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

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

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

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

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

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

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

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

ROOM AND BOARD

THE MEMORIAL UNION

IN the Memorial Union the University provides a variety of dining services for students operated on a non-profit basis and under the supervision of trained dietitians. The combined dining rooms in the Union accommodate 3500 students a day: the refectory, the largest room, serves three meals daily, cafeteria style; Tripp Commons serves a la carte and table d'hote meals at noon and the Georgian Grill offers the same service at night; the Rathskeller

provides light lunch and bar service for men at all times; the Paul Bunyan Cookshack offers an informal meeting place and refreshments for men and women. Every type of dining preference is met by the Union and costs are very low.

THE UNIVERSITY HALLS OF RESIDENCE

TRIPP AND ADAMS HALLS FOR MEN—Situated on the lake shore, Tripp and Adams Halls, accommodating a total of approximately 500 students, are of the most modern fire-proof construction. Each hall is a quadrangle divided into houses accommodating about thirty men; each house is thus an independent unit with its own entrance, social rooms, and toilet and shower facilities. This arrangement of units enables the men to become banded together in a congenial comradeship for social purposes and for participation in intramural athletic tournaments. The rooms are furnished in a comfortable and sturdy masculine style with chiffonier, bed, study table, lamp, and chair, bookshelves, arm chair, wastebasket, and curtains. Bed linen, a bed cover, and two medium weight blankets are supplied and laundered by the University, but students are expected to furnish towels and to provide for their personal laundry. It is suggested that each student provide himself with a heavy blanket or comforter.

Residents are subject to the regulations of the Men's Dormitory Association, a self-governing body, and are expected to comply cheerfully with the requirements and obligations of this association, including the payment of the semester dues. There are very definite regulations governing quiet hours and conduct at social functions and in the dining halls. The university rules applying to all organized groups are in effect in the dormitories. A group leader known as the dormitory fellow has immediate charge of the men in his unit; his office is to give counsel and help in building up a strong social organization, and to aid the men in profitably pursuing their college careers.

Single rooms are priced from $111 to $131 for the academic year; accommodation in a double room is $96 for the year. There is a limited number of two and three window rooms at $156 and $166 respectively. Refer to board rates under general information below.

CHADBOURNE AND BARNARD HALLS—Chadbourne and Barnard Halls are located adjacent to each other on one of the most convenient and beautiful corners of the campus. Surrounded by lawn and shade at the foot of the hill only a few steps from the library and classrooms, these attractive buildings have been for years a popular home for university women. They are rich in tradition and loved by alumnae who spent happy college days in "Ladies' Hall" the name by which Chadbourne was known in the days of President Bascom. Barnard Hall was built at a later date, but has always been popular because of its ideal location and pleasant rooms. Each hall accommodates 150 students and has pleasant parlors and ample facilities for entertaining. Each student room is furnished with dresser, bookshelves, study lamp and chairs. During the academic year students are expected to provide sheets, pillow cases, blankets, couch covers, and towels. During the summer session sheets, pillow cases, bed covers and two light weight blankets are furnished, but towels are not provided.

The women in the halls live in daily association with a cultured university woman, the hostess, who is always available to give counsel and help concerning studies or other university activities. Chadbourne and Barnard Halls have always stood high in scholarship on the list of women's groups. Those who are successful in maintaining a grade-point average of 1.3 are given preference in the assignment of rooms for the following year. Women living in the halls are subject to the rules of the Women's Self Government As-

sociation, to which all regularly enrolled women in the University belong. In addition, each hall has its house organization with its president and other officers whose duty it is to arrange the social program for the halls, see that the rules of the house are observed, and cooperate with the hostess in stimulating interest in the worthwhile and valuable opportunities of the university community. Nominal dues are assessed by the house organization.

Each hall has its own large dining room, operated by the University and under the direction of a trained dietitian.

The rental of a single room or accommodation in a two-room suite either in Barnard or Chadbourne Hall is $126 for the academic year; accommodation in a double room is $96 for the year. A number of attractive two-room suites and smaller single rooms may be rented at special rates.

General Information. All students living in the dormitories are required to take their meals in the hall dining rooms which are operated on essentially a cooperative basis. The cost of board depends so largely upon the market price of commodities that a definite rate cannot be established for more than a year at a time. In 1937-38 the cost of board was $254 for the year.

Preference in the assignment of rooms in the halls is given to residents of the state of Wisconsin; preference is likewise given to those who have had previous dormitory residence.

The halls and dining rooms are closed during the Christmas recess; during the spring recess the halls are open but the dining rooms are closed.

Applications for rooms will be received beginning January 1; they should be sent to the Director of Dormitories and Commons, together with a deposit of $10 and a statement of the student's choice of dormitory, his permanent home address, and an indication of the class he will enter. Room assignments will be made beginning June 1.

Written acceptances of assigned rooms for the year must be received by the Department of Dormitories and Commons not later than September 1, or, for the second semester, January 20, or the deposit will be forfeited and the room reassigned. Those accepting rooms must take possession by 8 a.m. of the last registration day of the first semester or the corresponding date of the second semester, or forfeit their deposit and room, unless written notification of late arrival is received by the department before that time. When a person remains on the waiting list after September 1 (or January 20 in case of the second semester) the deposit will be forfeited if an assignment is made and not accepted or rejected promptly. Unassigned depositors may claim a refund at any time.

All students are required to sign an agreement covering room and board for the period of assignment. Students wishing to withdraw may be released only when satisfactory arrangements with the Department of Dormitories and Commons have been made in advance.

Room and board bills must be paid in advance by the quarter. Rooms will be ready for occupancy at the beginning of the academic year in September at noon of the day preceding the beginning of Freshman Period. Baggage marked with hall and room number will be received beginning the same day.

Requests for information regarding rooms, board, rates, assignments, and refunds should be addressed to the Department of Dormitories and Commons.

THE UNIVERSITY MEN'S COOPERATIVE HOUSES

The University owns and operates five cooperative houses for men. These houses are located within a block of the campus and near the library, the Wisconsin Union, the gymnasium, student churches, the lake, tennis

courts, and the business district. Together they accommodate 115 men.

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

The actual cost of board and room is paid by the student. Payments are made in advance during the semester amounting to the estimated cost for that period. At the end of the school year each student receives a refund of his share of the balance remaining after all bills have been paid. The cost for the past year was approximately $270. All rooms are assigned for the entire academic year and residents are required to eat their meals in the central dining room of the cooperative houses. To keep costs down each resident cares for his own room.

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

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

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

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

UNIVERSITY COOPERATIVE HOUSES FOR WOMEN

Two cooperative houses for undergraduate women are located near the campus. Tabard Inn, founded in 1919, is three blocks from the campus; Anderson House, founded in 1921, is one block from the campus. Each house has a capacity of 20 and is operated by its officers together with the University Women's Housing Corporation. These houses provide pleasant homelike conditions at the lowest cost consistent with good living. For further information address the office of the Dean of Women.

SPECIAL INTEREST HOUSES

La Maison Française and Das Deutsche Haus, operated under direction of the Departments of French and German, respectively, are open to women students for room and board. Both men and women rooming outside may take their meals at these houses. Full information may be had upon application directly to the department of special interest, or to the office of the Dean of Women.

ROOM AND BOARD IN MADISON

Students who do not live in residence halls or houses operated by the University may obtain rooms in private rooming houses, the Y.M.C.A., fraternity, sorority and club houses or in Langdon or Ann Emery Hall. The last two named dormitories are privately owned but are subject to University regulations. Lists of approved rooming houses for men and women are prepared and may be obtained from the Dean of Men and Dean of Women respectively.

Houses for undergraduate women listed by the Dean of Women have been inspected by a member of her staff, and although responsibility cannot be assumed by the University except for the University-owned dormitories, such houses are believed to be suitable homes for women students. Although

they meet the standards established for women students, these houses vary in location and equipment. They accommodate undergraduate *women exclusively* and provide a parlor for the reception of visitors. Approved houses for undergraduate women offer room only in most cases. A few houses provide good board also. Several houses are equipped with student kitchens. The minimum period of rental is one semester. Students should make sure when renting whether the housemother expects a semester or a year agreement. Permission to live in houses not on the approved list is given by the Dean of Women only in exceptional cases, and *such permission must be obtained before the student engages a room.* Undergraduate men are advised, but not required to take lodgings in houses inspected and approved by the office of the Dean of Men. Lists of such houses may be secured at the Dean's office, 201 South Hall. Approved houses for men are inspected annually and required to conform to a set of minimum standards devised by the Committee on Living Conditions and Hygiene and to the city safety codes. Because, in order to cater to a diverse group of varying economic status, the list of approved houses must offer rooms at a wide range of prices, the university's approval of these houses is intended merely to indicate that they represent the best accommodations to be had at a particular price and that their landlords or landladies cooperate with the University.

The unit of rental is one year in all dormitories and the cooperative houses. Rooms in private houses are rented by the semester. Unless a definite agreement is made for a shorter period, a student is responsible for the full semester's rent. The Dean of Men recommends the practice of making agreements for rooms in writing and furnishes standard blanks for that purpose to all approved houses for men.

Board is available in several of the private houses approved for women, and the University furnishes excellent cafeteria and grill service in the Memorial Union for men and women students. Commercial cafeterias and tearooms near the campus provide good food. In addition, a limited number of places in the dining rooms at Chadbourne and Barnard Halls are available for women students not resident.

STUDENT LIFE

MEMORIAL UNION

Much of the life and activity of students outside the classroom is concentrated in the University's "living room," the Memorial Union, a splendid building erected and equipped at a cost of $1,250,000, largely through the generosity of more than 18,000 students, alumni, faculty, and friends of the University. Among the physical facilities of the Union are: cafeteria, large and small dining rooms, grill room, and lunchrooms; rooms for games, music, committee meetings, and assemblies; quarters for student publications and clubs; combined ballroom and banquet hall; library; art gallery; spacious lounge; barber shop; writing room; checkrooms; alumni offices; and lodgings for transient alumni and parents of students. By virtue of this wide range of facilities, the Memorial Union opens to the university community heretofore unequalled opportunities for social gatherings of all types.

The student house committees working with the Union staff, provide students with countless social and cultural functions in the building which are free; it is unnecessary, therefore, for a student to budget very much money for recreation at the University. Included among the regular free Union programs are: open houses, Sunday concerts by well-known artists, weekly moving pictures for men and for women, weekly matinee dances, weekly coffee hours, open forums, art exhibitions and lectures, game tourna-

ments, dancing lessons, a handicraft workshop, and hobby classes, winter sports parties and skiing instruction, women's teas and men's stags, and phonograph symphony concerts.

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

DIVISION OF SOCIAL EDUCATION

The Union serves also as the University's Division of Social Education and relates its activity closely to the general educational program of the University. Besides complementing other campus personnel agencies in ministering to the social and recreational welfare of the student body, it utilizes its facilities as laboratories for those departments wishing to assign practical work in cultural, social, or administrative fields. The educational staff offers specific training and counsel to students working on house committees and campus projects in the administrative and professional aspects of community leadership and service and the objectives and methods of recreational education.

FACULTY SUPERVISION

The Faculty Committee on Student Life and Interests has general supervision over all organized student activities. Its chairman, the Dean of Men, and its secretary, the Assistant Dean of Men, are available for correspondence and consultation regarding student affairs at all times. They will gladly confer with parents or guardians regarding individual men students, and they are anxious to get in touch with boys who are contending against illness, discouragement, financial worries or other obstacles to successful work in college. The office issues mimeographed lists of lodging and rooming houses for men students, with detailed information.

The academic and social welfare of women students is under the direct supervision of the Dean of Women, whose office is located in Lathrop Hall, a building designed for the use of women students. The dean and her staff of assistants invite correspondence with parents and guardians of women students and gladly cooperate with them in matters affecting their welfare. For the benefit of those women who cannot be accommodated in Chadbourne and Barnard or other residence halls, the offices of the Dean of Women prepares a list of rooms for women students. New students desiring rooms should call at the office of the Dean of Women upon arrival in Madison.

STUDENT GOVERNMENT

The Wisconsin Union. The Wisconsin Union is the organization of all men and women students, created to operate the new Memorial Union building and to provide a cultivated social program and a common life for its student, faculty, and alumni members. Its chief component parts are the Men's Union, representing the men of the University, and the Women's Self-Government Association, representing the women.

The central governing body of The Wisconsin Union is the Union Council, consisting of eight men and women student members and six alumni and faculty members, all elected or appointed by the bodies of Union members

they respectively represent. Assisting the Union Council are twelve committees, planning for an extensive social program and controlling the several departments of the house: commons, library, program, women's affairs, graduate activities, gallery, forum, etc.

The Wisconsin Union is an experiment not only in the integration of a diverse student population and in the enrichment of the hours outside the classroom, but also an experiment in student self-government and self-education.

MEN'S UNION AND HOUSE PRESIDENTS' COUNCIL. By vote of the faculty and the Regents the Men's Union and the Women's Self-Government Association have been chartered as the articulate organizations of the student body in charge of the administration of student self-government.

Every male student in the University is *ipso facto* a member of the Men's Union. Where Wisconsin men are concerned, the Men's Union is concerned; consequently it tries to set up, by example rather than precept, a set of standards by which the quality of a man at Wisconsin is to be judged, and tries to make it possible for a man to live a full-rounded man's life at the University. Among the more external agencies of which the Union avails itself to accomplish its purposes are: student dances, a winter sports program, a community chest, and a concert series which brings leading musical artists of the world to Madison.

The two formal units in the executive machinery of the Men's Union are the Union Board and the House Presidents' Council. The Union Board is the board of directors of the Men's Union, and it chooses the president and the other officers of the Union from among its own number; the Board is elected by the male members of the student body. The House Presidents' Council was formed in 1932-33 for the purpose of "integrating the men students in the University, providing a means for organized student action, and providing social, cultural and athletic opportunities for the maximum number of men students." Each dormitory, fraternity, or lodging house having more than seven men residents elects a house president in the early fall. These 130 or more presidents direct the life of their own houses and form a thoroughly democratic body which meets on broad questions of campus policy. Resolutions passed by the Council are considered the official decisions of the men students. On occasion, the Women's Self-Government Board joins with the Council in matters of interest to both men and women. The Men's Union Board serves as the administrative committee for the Council and finances its activities. The Council has its own weekly bulletin, organizes numerous inter-house social affairs and game tournaments, and aims to bring the cultural and social opportunities of the campus within reach of every student.

WOMEN'S SELF-GOVERNMENT ASSOCIATION. Every woman student in the University is automatically a member of the W. S. G. A. The object of the Association is, in its own words, "to regulate all matters pertaining to the student life of its members which do not fall under the jurisdiction of the Faculty; to further in every way the spirit of unity among the women of the University; to increase their sense of responsibility toward each other; and to be a medium by which the social standards of the University can be made and kept high." Each dormitory, cooperative house, sorority house, special interest house, and each approved house where more than three girls reside, has one or more repesentatives on the board.

The Executive Council of W. S. G. A. is composed of the officers of the Association, the four class representatives, the elections, district, and judicial chairmen, and the senior and junior members-at-large on Union Council. The Executive Council formulates and directs such policies and plans as shall

further the best interests of the women of the University. The Legislative Board, comprised of representatives from each dormitory, sorority house, and approved house where more than three girls reside, forms a larger voting body to legislate on all house problems and rules.

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

STUDENT HEALTH

The Department of Student Health is established for protection and care of the health of students attending the University. The facilities for this purpose include an adequate and excellently equipped Student Infirmary for those needing hospital care, and the student clinic for ambulatory cases seeking health advice or medical consultation. A part of the general fees paid by the student goes into a fund for the support of the Infirmary, and entitles the student to such hospitalization and general nursing care as he may need during the period covered by the general fee, for illness arising during this period.

The medical staff of the Student Health Service is supported by general university funds and is responsible for furnishing medical care to individuals primarily in the interests of the University as a whole. In return for the individual medical care students are expected to cooperate with the medical staff through observance of health regulations relating not only to personal health but also to that of the university community. Students are urged to seek freely advice concerning personal health or the remedying of conditions affecting university hygiene. They are especially urged to report promptly symptoms of possible infection or contagious diseases.

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

Physical Examination. A complete physical examination is required of each student upon admission to the University, whether as a freshman or to advanced standing. Examinations for this purpose are held at the beginning of each semester. The student is required to present himself punctually at the hour allotted during registration, assured that these appointments hold precedence over classwork. A medical history card is made out and filed for future reference. In case further study of the student's physical condition is deemed advisable he may be requested to report for this purpose. The physical survey includes tuberculin skin testing to determine those requiring additional investigation with a view to discovering early the possible presence of unsuspected trouble. Based on the findings of the medical examination, recommendations may be made to administrative officers in charge of academic work or requirements in physical education or military service, suggesting individualized health programs and class schedules. Graduate students finding conflict between teaching hours and the required medical examination may secure another appointment at a mutually convenient hour by an immediate phone call to the Student Health Service.

Office Calls. The offices of the members of the Student Health Service are on the first floor of the Student Infirmary which has corridor connections with the main building of the Wisconsin General Hospital. The facilities of the Health Service are supplemented by those of the main hospital, the staff members of which are available for consultation when deemed necessary by the medical staff of the Health Service. The regular hours for office calls are from 8 A.M. to 12 Noon and 1:30 to 4:30 P.M. each week day except

Saturday afternoon and from 9:30 to 10:30 A.M. on Sunday. Whenever possible these hours are to be observed and appointments for consultation made in advance, in order to avoid unnecessary waiting. Physicians are available at all times, night and day, for emergency care.

HOUSE CALLS. Members of the staff of the Student Health Service will make house calls on students prevented by illness from visiting the Clinic. Such calls are primarily for the sake of diagnosis. Should prolonged medical bed care be needed the student will be transferred to the Student Infirmary, if he desires medical care at University expense. Calls may also be made for study of the medical aspects of living conditions where this appears advisable. Vaccination or observation may be required of any student if this seems necessary to prevent spread of infection.

HOSPITAL CARE. The Student Infirmary has one hundred beds available for hospital care. The Infirmary offers facilities of isolation in case of communicable disease and is thus of special value in disease prevention. Admission and discharge from the Infirmary is at the discretion of the medical staff.

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

SPECIAL SERVICES. The Infirmary fund supplies necessary hospital care in the Infirmary for students in residence. The services of the medical staff are furnished by the University to supervise the health of the students and to give such medical care as may, in the judgment of the staff, be necessary for this purpose. The University does not attempt to provide the services of surgical specialists, dental care, special nursing, blood transfusions or other unusual treatment, as a regular part of its health program.

UNIVERSITY HIGH-SCHOOL STUDENTS. The University High-School students do not contribute to the Infirmary fund and are, therefore, not entitled to hospital care at the Student Infirmary. The medical staff of the Student Health Service gives each new high-school student a thorough physical examination and reports the findings to the high-school principal. It examines those who have been absent through illness and those who while at school appear ill. The staff also gives emergency aid in case of accidental injuries or sickness arising in school. It does not, however, attempt further treatment than that necessary to provide proper care until the parents and family physician can take the patient in charge.

FACULTY AND EMPLOYEES. First aid in case of accidental injury and diagnosis of acute conditions that might, if not recognized, result in communicable diseases spreading on the campus, may be furnished by the Student Health Service where necessary.

In the prevention of disease and promotion of health of the students, the Student Health Service requires the cooperation not only of the students but also of the university faculty, university employees, parents, and of all others concerned with the welfare of the students. The members of the medical staff earnestly solicit this cooperation.

SOCIETIES AND PUBLICATIONS

LITERARY, FORENSIC, AND DRAMATIC SOCIETIES. The men's literary societies are: Athena, organized in 1850, and Hesperia, organized in 1854. These

societies are interested principally in debating. The women's literary societies are: Castalia, organized in the early years of the University, and Pythia, organized in 1902. Most of their time is devoted to more general literary pursuits and not extensively to debating. The University is a member of the Western Conference Debate League composed of Northwestern University, Purdue University, and the Universities of Michigan, Illinois, Minnesota, Iowa, Indiana, Ohio, and Wisconsin. Conference debates are scheduled regularly and additional intercollegiate debates are arranged from time to time.

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

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

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

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

Professional Societies. A number of professional clubs and societies for the promotion of interest in special lines of academic or technical work have been organized and are usually maintained under the guidance of the departments concerned. In other departments where no such organization has been effected, similar results are reached by means of senior and graduate seminaries.

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

Musical Organizations. The University Orchestra has a membership of about eighty players. The finest examples of symphonic music are studied and performed. Two full rehearsals and one sectional rehearsal are held each week. Membership is open to the entire University by tryouts. Students who qualify may receive one credit listed as Music 76.

The Light Opera Orchestra is limited to twenty-four men students. Overtures, selections, and light opera music will be studied and performed. Membership decided by tryouts.

The Second Orchestra is open to all university students who through lack of experience or because of conflict do not play in the regular University

Orchestra. The fundamentals of orchestral playing are stressed in the study of the easier types of music. Practical experience in conducting and interpretation is offered. Instruments may be rented from the School of Music. No credit.

The University Band consists of two-hundred men divided into a Concert Band, First Regimental Band, and a Second Regimental Band. The Concert Band devotes its efforts to the study and performance of the higher forms of music. The Regimental Bands serve as a training school for the Concert Band and serve the Military Department at official functions. The University Bands also play for University convocations and cooperate with the Athletic Department at games. Each organization rehearses three times weekly. Underclassmen may elect Band to fulfill the physical activity requirement. Upperclassmen who are members of the Concert Band and selected members of the Regimental Bands who remain for duty at Commencement receive a stipend of thirty dollars. Membership in Band is determined by tryout. Members of the University Bands may receive one hour of credit beginning with the sophomore year by registering in Music 80.

A Women's Band has been organized to give an opportunity for all those university women who have had experience with a band instrument. This group rehearses three times each week.

The Men's Chorus is made up of approximately 50 singers. Membership in the club is determined by competitive tryout and is open to the entire student body including graduates. This may be taken for one credit by registering in Music 77.

The University Singers, an organization of fifty voices, studies and performs masterpieces of choral literature. Membership is on a competitive basis and is open to any student in the University, including graduate students. The course may be taken for one credit by registering in Music 77.

The Women's Chorus, an organization of forty-eight voices, studies and performs the finest music available. Membership is open to the entire student body. Auditions are held at the beginning of each semester. It is listed as Music 77 and may be elected for 0 or 1 credit.

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

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

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

Alpha Epsilon Iota (Women's Medical), 1926
Alpha Kappa Delta (Sociology), 1922
Alpha Omega Alpha (Men's Medical), 1926
Alpha Zeta (Agricultural) 1905
Artus (Economics), 1912
Beta Gamma Sigma (Commerce), 1913
Chi Theta Epsilon (Civil Engineering), 1924
Delta Phi Delta (Art), 1921
Delta Sigma Rho (Forensics), 1900
Eta Kappa Nu (Electrical Engineering), 1910
Gamma Alpha (Graduate Scientific), 1910
Gamma Sigma (Gymnastics), 1918
Order of the Coif (Law), 1907
Omicron Nu (Home Economics), 1915
Phi Beta Kappa (Academic), 1898
Phi Delta Kappa (Educational), 1921
Phi Eta Sigma (Men's Freshman Scholastic), 1927
Phi Kappa Phi (General), 1919
Phi Lambda Upsilon (Chemical), 1906
Phi Mu Alpha Sinfonia (Men's Musical), 1921
Phi Sigma (Biological), 1917
Pi Epsilon Delta (Dramatic), 1919
Pi Tau Sigma (Mechanical Engineering), 1916
Rho Chi (Pharmaceutical), 1925
Scabbard and Blade (Military), 1905
Sigma Delta Chi (Men's Journalistic), 1911
Sigma Delta Epsilon (Women's Graduate Scientific), 1921
Sigma Delta Pi (Spanish), 1931
Sigma Delta Psi (Athletic), 1917
Sigma Epsilon Sigma (Women's Freshman Scholastic), 1927
Sigma Sigma (Medical), 1908
Sigma Xi (Graduate Scientific), 1907
Tau Beta Pi (Engineering), 1899
Theta Sigma Phi (Women's Journalistic), 1910

PART III—ADMISSION

METHODS OF ADMISSION

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

1. By presenting a certificate of graduation from an accredited high school with the recommendation of the principal (see page 38).

2. By passing entrance examinations (see page 40).

3. By qualifying as an adult special student (see page 41).

4. By submitting evidence of studies successfully pursued in another institution of higher learning (see page 41).

By corresponding with the University Registrar, prospective freshmen and adult special students may learn at any time of year whether or not they have the necessary qualifications for admission and upon what basis they may be admitted. Prospective students who have had some college work should correspond with the Advanced Standing Committee (see page 41). Students may enter the University at the opening of either semester or of the summer session, but all credentials should be filed sufficiently in advance of the date chosen to permit the authorities to pass upon them and to issue the proper certificates of admission. Candidates for admission in September are responsible for having their credentials filed by the first of August. The credentials must in every case include a complete record of all previous secondary school and advanced work.

FRESHMAN PERIOD

All freshmen are required to be present at the University on the Wednesday preceding the beginning of instruction in September and to remain throughout the week. This period (September 14-20, 1938), will be devoted to registration, conferences with advisers, physical examinations, aptitude tests, special educational examinations, assignments to classes, lectures and discussions on subjects of importance to new students, and a general introduction to university life.

Because attendance throughout the entire period is required, it is essential that all details connected with admission be attended to as early as possible. Students who graduate from high schools or academies in June should inform their principals some time in May or early in June of their intention to attend the University in the fall, so that the necessary certificates may be prepared and other important data furnished to university authorities. No guaranty of admission can be made to prospective students whose credentials are not in the hands of the Registrar by August first. So far as possible, candidates who will need to take entrance examinations should avail themselves of the June examination period; this means that candidates with dubious records and those from non-accredited schools outside the State would do well to correspond with the Registrar before June first.

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

GENERAL REQUIREMENTS

Sixteen units are the fundamental requirement for regular admission to any college or course in the University, excepting certain special short courses in the College of Agriculture, as specified on page 37.

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

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

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

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

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

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

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

3. Admission of such graduate shall be based upon: (a) the completion of two majors and two minors selected from four of the fields in Group A (below); one of these majors shall be English and Speech (unless the candidate offers a minor in foreign language, in which case a minor in English and Speech will suffice); and for "unrestricted" admission one major or minor shall be mathematics, *i.e.*, one unit of algebra and one unit of plane geometry, with an additional half-unit of algebra recommended in the case of those who seek unqualified admission to the College of Engineering; and (b) the completion of the additional units necessary to make a total of

sixteen units selected from Group A and Group B (below), with the provision that not more than six of the sixteen units may be presented from Group B. Pupils planning early in their high-school career to enter the College of Letters and Science or the College of Engineering are advised to present all sixteen units from Group A. Until further action by Faculty and Regents not more than two units in advanced applied music or, alternatively, in art will be accepted under Group A. (Broadly speaking advanced applied music may be provisionally defined as applied music based upon two years of preparation in band or orchestra, or equivalent preparation in chorus. The units in art shall be based upon adequate preparation in free-hand drawing in the grades or an equivalent.)

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

5. FIELDS OF STUDY

GROUP A

(1) English and Speech
(2) Foreign Language
(3) History and the Social Sciences
(4) Mathematics
(5) Natural Sciences
(6) Advanced Applied Music or Art

GROUP B

(1) Agriculture
(2) Commercial Subjects
(3) Home Economics
(4) Industrial Arts
(5) Mechanical Drawing
(6) Optional (2 units)

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

7. "Restricted" standing may at any time at the option of the student be changed to "unrestricted" standing by the mastery, subsequent to high-school graduation, of the content of high-school algebra and plane geometry by private study, tutoring, or correspondence study. The University will not provide resident instruction in this preparatory work.

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

SPECIAL REQUIREMENTS

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

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

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

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

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

Law School. Candidates for the degree are required to present for admission the equivalent of three full years of work in the College of Letters and Science or in the College of Engineering. The latter are required to include at least six credits from the field of social sciences. A limited number of students who have reached their majority and who have the general entrance requirements stated above and two years of college work may be admitted as special students.

Library School. The numerous special requirements are given in detail under the heading Library School (see page 96).

Medical School. Three full years of work in the College of Letters and Science are required for admission, including the special subjects as set forth in detail under the heading Premedical Courses (see page 80).

Music School. The special requirements as set forth under the heading

School of Music, which see. It is advisable that such students should include in their high-school work music courses as outlined under "Scope of Preparatory Work" (see page 48).

FOREIGN LANGUAGE

COURSES LEADING TO THE BACHELOR OF SCIENCE DEGREE

Although foreign language is not definitely required for admission to any course, failure to present it will result in greatly curtailing the student's free elections in completing the requirements for graduation from certain courses. For students who desire to absolve their foreign language requirements by passing attainment examinations it will be of great advantage to acquire and retain a considerable degree of proficiency in their high-school languages. (See page 57 for statement concerning foreign language attainment examinations.) Those who expect to enroll in any of the following named courses are strongly advised to prepare themselves in foreign language as indicated:

College of Letters and Science

Course in Chemistry—2 units of French; 2-4 units of German
Course in Hygiene—2-6 units, any languages listed in paragraph 6 above
Medical Science Course—2 units of Latin; 2-4 units of French or German
Medical Technology Course—2-4 units of French or German
Pharmacy Course—2 units of French; 2-4 units of German; 2 units of Latin
General Course leading to the Bachelor of Arts degree, Course in Commerce*, Course in Journalism—4 units of French, German, Latin, or Spanish, with a possible addition of 2-3 units of another language listed in paragraph 6 above
Course in Humanities—4 units of Latin, and 2-4 units of Greek, French, or German
General Course, with major in Medical Science—2 units of Latin and 4 units in French or German or both. Course in Music (Bachelor of Music degree)—2-3 units of French, German, or Italian.

College of Agriculture

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

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

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

*No foreign language required in Commerce if student is a candidate for the Ph.B. degree.

ADMISSION UPON CERTIFICATE

FROM WISCONSIN SCHOOLS

Graduates of accredited high schools may enter the University, without examination, upon presentation of a certificate showing the satisfactory completion of the sixteen required units and bearing the recommendation of the principal. Only the form prepared by the University is acceptable, a supply of which may be obtained from the Registrar by the principal. The com-

pleted certificates should be returned to the University before August 1.

Before applying for admission to the University, graduates are urged to confer with their principals, seeking information as to the significance of ratings in the college aptitude test given to all seniors in Wisconsin high schools. This rating, combined with the high-school record, is valuable insofar as it enables the principal to interpret a prospective student's chance of success in college.

Principles of accredited schools are requested to note the statement on page 42 regarding the examination of freshmen in English. A similar examination in algebra is given to freshmen in the College of Engineering.

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

Any high school or academy in the State whose course of instruction covers the branches required for admission to the University may be admitted to its accredited list of preparatory schools, after a satisfactory examination by a committee of the Faculty. Upon application made by an officer of any high school or academy in the State to the Chairman of the Committee on High-School Relations, the University will examine the school with reference to placing it upon its accredited list of preparatory schools. The examination, which will be conducted by a committee of the Faculty, will cover the course of study and methods of instruction in the school. No school can be placed upon the list whose course of study is not fully equal to the four-year course for high schools recommended by the State Superintendent.

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

FROM SCHOOLS OUTSIDE WISCONSIN

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

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

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

DEFICIENCIES IN ENTRANCE REQUIREMENTS

Graduates of secondary schools who fail to gain the recommendation of their principals because of low grades will be required to take entrance examinations in those Group A subjects in which they are deficient. A deficient

grade is one lower than 77 when 70 is the passing grade of the school, or below 81 on the basis of 75 as passing.

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

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

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

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

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

ADVANCED CREDIT

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

ADMISSION UPON EXAMINATION

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

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

In general, it is preferable for prospective entrants to submit to examination in February or June rather than in September, since failure at the

latter date may result in a sudden change of plans at the very outset of the academic year.

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

ADMISSION ON THE ADULT SPECIAL BASIS

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

Candidates applying for admission on the above basis are required to present to the Registrar in advance of their coming an official detailed statement of their preparatory studies for evaluation and approval.

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

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

ADMISSION WITH ADVANCED STANDING

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

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

Not more than one-fourth of the number of credits required for a four-year course will be given for a single year's work in another institution.

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

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

ADMISSION TO THE SUMMER SESSION

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

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

SCOPE OF 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 AND SPEECH

ENGLISH. Candidates for admission must present a minimum of two units in English and Speech. Half of the work in English should be devoted to theme writing and instruction in composition, and half to the detailed study of a number of the English classics. Further study of English is recommended, to consist of additional work in composition, and either (1) an outline history of English or American literature with the reading and study of selections of each period, or (2) the intensive study of a few typical examples of the novel, the drama, the lyric, and the essay.

Every entrant is examined as to his ability to express himself in clear, correct, idiomatic English. The test consists in writing several essays on familiar subjects, in which the student 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 show serious weakness in spelling, punctuation, grammar, sentence construction, or division into paragraphs. Facility of expression will not be sufficient to offset marked deficiencies in these respects.

Exemption from Freshman English. Exemption can be secured only through high attainment on a series of tests. These tests fall under three types:

accomplishment on the Psychological Test and on the Language Test; on the theme writing of the first week of the fall semester; and on the final Exemption Test. Only those are eligible for this final examination who have shown merit on the tests preceding it; and only those who pass it can secure exemption from Freshman English. Occasionally able students transferring from other institutions are admitted to this Exemption Test without taking the preliminary examination listed above.

SPEECH. The following preparatory courses in the field of speech are recommended:

FUNDAMENTALS OF SPEECH, 1 unit: The paramount objective in this course should be improvement in the communicative speech of everyday life. Elementary knowledge and training basic in all forms of speaking and reading should be stressed. The course should include study of and practice in thinking, visible bodily action, voice, pronunciation, oral style, and social adjustment. Fundamentals of Speech should be prerequisite to all other courses.

PUBLIC SPEAKING AND DEBATING, ½ or 1 unit: Attention should be given to: steps in the preparation of original speeches, audience attitudes, types of speeches, parliamentary law and discussion procedures, selecting and phrasing propositions for debate, analyzing propositions, organizing and delivering debate speeches, rebuttal techniques.

INTERPRETATIVE READING AND DRAMATICS, ½ or 1 unit: The following should be considered: selecting material for oral interpretation, assimilitating thought and feeling, applying voice and action to interpretative presentation, choosing a play, impersonating characters, staging a play, and broadening experience through vicarious dramatic living.

MATHEMATICS

ALGEBRA. 1, 1½, or 2 units. The one unit required for unrestricted standing should include: addition, subtraction, multiplication, division, equations of the first degree with one unknown number, simultaneous equations of the first degree, including the graphical solution of a pair of linear equations with two unknowns, factors, highest common factor, lowest common multiple, solution of quadratic equations.

A third half year of algebra is strongly recommended for all students and is required of engineering students. The work should cover: the theory of quadratic equations; elementary theory of exponents and radicals; systems of non-linear equations including linear quadratic systems, quadratic systems containing no first degree terms; graphic representations of quadratic equation in two variables; examples involving binomial theorem with positive integral exponents; arithmetical and geometrical progressions; logarithms; ratio, proportion, and variation.

If a fourth half year is given it should cover: proof of binomial theorem for positive integral exponents, with examples involving negative and fractional exponents; polynomials and equations of any degree in one variable. including factor theorem, remainder theorem, determination of rational roots, graphic and algebraic approximate determination of real irrational roots, roots common to two equations, relation between roots and coefficients of the equation; permutations and combinations; determinants.

GEOMETRY. 1 unit of plane geometry is required for unrestricted standing. An additional half year of solid geometry is strongly recommended for students who expect to enter the College of Engineering.

TRIGONOMETRY. ½ unit. The fundamental properties of the trigonometric functions, the addition theorem and the more important formulas which follow from it; the solution of the various cases of right and oblique plane triangles; the use of logarithmic and trigonometric tables.

Additional credit. ½ or 1 unit for work in algebra, trigonometry, surveying, or other mathematics; total credit not to exceed 4 units.

The attention of students intending to enter the School of Commerce is called to the importance of a thorough preliminary training in mathematics.

HISTORY AND THE SOCIAL SCIENCES

HISTORY. 1, 2, 3, or 4 units. History may be offered in the following blocks of 1 unit each: ancient, ancient and medieval, European to approximately the end of the 17th Century, medieval and modern, modern European, English, United States, world history. One, two, three, four, or more blocks may be presented. A real equivalent may be presented in place of a recommended block, but a one-year course in general history will not be accepted.

CIVICS. ½ or 1 unit. This may comprise the study of government in its relation to either the local community or the nation, or both. It may be combined with history or economics in the construction of an elective unit.

ECONOMICS. ½ unit. A knowledge of the fundamental principles of economic science as presented in a good elementary treatise.

HUMAN (CULTURAL) GEOGRAPHY. ½ or 1 unit. Courses offered in this subject should include studies in the human occupation and use, mainly economic, of the regions of the earth, organized by topics, by countries, or by a combination of the two.

NATURAL SCIENCES

BIOLOGY. 1 unit. This course should include plant biology, animal biology, and human biology or physiology. The course should include demonstrations by the teacher and individual laboratory work on the part of students. Biology should be upon the same basis as physics and chemistry.

BOTANY. 1 unit. A study of the life histories of types from the main groups of plants, with a series of simple physiological experiments. At least two-thirds of the course should consist of laboratory work. If it is impracticable to give a full year's work to the subject, botany may be combined with physical geography, physiology, or zoology to construct units.

CHEMISTRY. 1 unit. A study of the more common elements and their compounds, and some of the simpler fundamental theories of modern chemistry. This course should include about four or five actual hours of work a week in the laboratory, and two or three periods a week in the classroom throughout the year. Two laboratory periods are considered as equivalent to one class exercise. A laboratory notebook must be kept.

PHYSICS. 1 unit. Not less than three classroom periods a week, and not less than four actual hours of work a week in the laboratory. A record of all work done should be kept in a notebook. Any standard textbook may be used.

PHYSICAL GEOGRAPHY. ½ or 1 unit. To consist of a study of the earth conditions which comprise the natural environment of man, such as land

forms, climates, and natural resources. Field work and laboratory study of topographic maps should be included.

PHYSIOLOGY. ½ unit. Human anatomy, histology and physiology, and the essentials of hygiene. The textbook work must be illustrated by charts and models, and supplemented by anatomical demonstrations and physiological experiments.

ZOOLOGY. 1 unit. Laboratory work (at least two-thirds of the course), with careful description and drawings. Class exercises may be based on any standard textbook.

FOREIGN LANGUAGE

GREEK. 1, 2, or 3 units. First unit, grammar and elementary book; second unit, Xenophon's *Anabasis,* four books; Greek composition; third unit. Homer's *Iliad,* six books, or an equivalent amount of the *Odyssey;* Greek composition.

LATIN. 1, 2, 3, or 4 units. First unit, grammar and elementary book; second unit, *Caesar,* books I-IV; third or fourth units, *Cicero,* six orations (selections from the letters may be substituted for two orations); or *Virgil,* six books; composition preferably in connection with *Caesar* and *Cicero.* These requirements are planned with special reference to the needs of those candidates who purpose continuing the study of ancient or modern languages or of history.

GERMAN. First unit. (a) Correct pronunciation. (b) Reading: about 50 pages of easy German prose. (c) Grammar: equivalent to Betz and Price *A First German Book;* Lensner *Neuer Praktischer Anfang;* Burkhard *Sprechen Sie Deutsch,* with special stress on declension, conjugation, prepositions, pronouns, and word-order. (d) The vocabulary assigned for the first year of German in the Standard Vocabulary List accepted by the Modern Language Teachers' Association, 1933, published 1934, Crofts and Company, New York.

Second unit. (a) Fluent pronunciation. (b) Reading: about 200 pages of German prose including some simple poems and if possible a short play. (c) Elementary grammar completed with special stress on adjective declension, passive voice and subjunctive forms, about 75 of the more usual strong verbs. (d) The vocabulary assigned for the second year of German in the Standard Vocabulary List accepted by the Modern Language Teachers' Association, 1933, published 1934, Crofts and Company, New York.

Third unit. (a) Further grammar and syntax study in connection with composition work. (b) 200 pages of reading, chiefly modern prose; 100 pages outside reading reported on for content only. (c) Constant oral and written practice.

Fourth unit. (a) At least 400 pages of standard literature in prose and verse, partly as outside reading. (b) Increasing attention to literary appreciation and biographical and historical background. (c) Ability to understand ordinary modern German texts, to write simple topics relating to them, and to converse on them in German. (d) Ability to follow recitations conducted in German.

FRENCH. First unit. (a) The elements of grammar as found in the first part of usual French grammars; (b) about 100 pages of simple French, with emphasis on correct pronunciation.

Second unit. (a) A review of the grammar covering all the most common irregular verbs; (b) 200 pages of simple French.

Third unit. (a) At least 400 pages of French chosen from nineteenth-

century classics; (b) considerable work in oral and written composition.

Fourth unit. One year of work, including: (a) at least 500 pages of classic and Modern French literature; (b) ability to write a short French composition and to show understanding of a simple lecture in French by answering questions upon it in the same language. In both the third and fourth units of French the chief emphasis will be placed on the reading, the (a) factor.

For detailed information as to grammars, texts, etc., see *A Four-Year High-School Course in French,* copies of which may be obtained on application to the Department of French and Italian.

ITALIAN. First unit. (a) The elements of grammar; (b) 200 pages of easy Italian, with emphasis on correct pronunciation. Second unit. (a) Correct pronunciation; (b) ability to translate freely simple Italian texts; (c) an accurate knowledge of the grammatical principles of the language, and of its regular verbs; (d) about 500 pages of text.

SPANISH. First unit. (a) The elements of grammar as found in the first half of a standard Spanish grammar of 50 lessons; (b) correct Castilian pronunciation and comprehension of simple Spanish; (c) about 75 pages of a simple introductory reader.

Second unit. (a) The elements of grammar as found in the second half of a standard Spanish grammar of 50 lessons; (b) conversation in simple Spanish; (c) correct translation of about 150 pages of elementary Spanish texts.

Third unit. (a) Correct translation of about 200 pages of Spanish chosen from nineteenth-century novelists and dramatists; (b) about 150 pages of intermediate Spanish texts for extensive outside reading; (c) oral and written work in elementary composition and conversation.

Fourth unit. (a) Correct translation of about 250 pages of Spanish chosen from nineteenth-century and contemporary novelists, dramatists and essayists; (b) about 200 pages of moderately difficult Spanish prose for extensive outside reading; (c) oral and written work in elementary composition and conversation.

For detailed information, see pamphlet entitled *A Four-Year Course in Spanish* issued by the Department of Spanish and Portuguese.

NORSE. First unit. Grammar, exercises, and reading equivalent to the material contained in E. Haugen, *Beginning Norwegian*: pronunciation, basic principles of grammar and recognition of 1000 most common words.

Second unit. (a) A review of the grammar; (b) 300 pages of prose and verse, equivalent in grade to Holvik's *Second Book in Norse;* Ibsen's *Terje Viken,* Bjornson's *En glad gutt,* or Bojer's *Den siste viking.*

HEBREW. First unit. (a) Correct pronunciation and principles of Hebrew phonetics; (b) grammar, the equivalent of Harper's *Elements of Hebrew* as prescribed in Harper's *Introductory Hebrew Method and Manual,* first 25 lessons (through the regular verb); (c) reading the first four chapters of *Genesis* or an equivalent amount of simple historical prose; (d) translation of simple English sentences into Hebrew. Second unit. (a) Completion of the *Elementary Hebrew Grammar* covering the irregular verbs and nouns with suffixes (completion of Harper's *Method and Manual*); (b) the reading of about 50 pages of simple Hebrew prose; (c) ability to translate into Hebrew ordinary English prose, and to read at sight historical Hebrew like the narrative portions of *Judges* or *Samuel,* when new words are given.

ART, MUSIC, AND VOCATIONAL SUBJECTS

ART

1, 2, 3, or 4 units. When art is offered for admission, entrants are expected to have a preparation equivalent to that described under Group A or B or both. Two units may be offered in each group.

A unit is defined as the equivalent of five double periods a week for one year. Under conditions in which double periods are not adapted to the school program, a single period is acceptable, provided that the equivalent to the double period is established by assigned reading, discussions, notebooks and outside work.

GROUP B

DRAWING AND APPLIED DESIGN. 1 to 2 units. Whether taken together or separately, drawing and design are considered as preparatory work; and both are prerequisite to the advanced program offered in Group A. Students with such preparation may go at once into the latter group. The following suggestions are offered as defining the minimum essentials of achievement:

1. Drawing:

   a) Ability to make accurate drawings, following the fundamentals of composition.

   b) Knowledge of beauty of line, form and tone in drawing. Analysis of art material to determine the presence of these qualities.

   c) Skill in the use of drawing in the development of original compositions.

   d) Facility in the use of pencil, chalk, pastel, charcoal, and other plastic materials.

2. Creative Design. Creative design may be developed in one or more of many mediums, as wash, tempera, wax pencil, clay, wood, metal, textiles, and other materials of the arts. It involves:

   a) Study of basic elements of design (conveniently defined by the Federated Council on Art Education).

   b) The development of power of discrimination by application of basic principles.

   c) The development or originality in design. The problems may well be based upon demands of the school, home (dress and home furnishings) and community life (civic beauty).

3. Applied Design. Application may be in metal, clay, wood, or other decorative material. This art field pre-supposes a familiarity with the laws of design and their applications.

GROUP A—ADVANCED ART

THEORY AND USE OF COLOR. ½ to 2 units. Prerequisite: Group B or equivalent knowledge. Mediums may be watercolor, tempera, oil, crayon, or other

suitable media.

1. Interpretations of objects by abstract or semi-realistic methods.

2. Advanced color projects and their applications.

For the present, the University reserves the right to give proficiency tests in these units during the Freshman Period or thereafter.

MUSIC

A maximum of four units of entrance credit in music may be allowed, when taken under conditions stipulated by the University School of Music. Two units may be in the "A" group and two in the "B" group.

"A" GROUP SUBJECTS

Credit in the following may be earned after two years of preparatory work:

ORCHESTRA. 1 unit per year; five periods per week. The basis for recognition of credit by the University is:

a) The instrumentation shall be such that constructive orchestral development is possible.

b) Instructors must have had sufficient practical training to satisfactorily carry on such work.

The purpose of this course is to provide players of orchestral instruments an opportunity for the development of skill and for the enjoyment of this form of ensemble playing. It is essential, therefore, that there be an instrumentation that is sufficiently complete for the characteristic qualities of the various choirs to be realized. It is only upon this basis that an adequate performance of the literature of the symphony orchestra may be approximated.

The following minimum instrumentation is essential: four first violins, four second violins, two violas, one cello, one bass, one flute, two clarinets, one oboe, one bassoon, two trumpets (or cornets), one trombone (valve or slide), two French horns, tympani and percussion.

In augmenting this group, the strings may first be greatly increased, with attention, however, to proportional increases in violas, cellos, and basses; then second bassoon, second oboe, second and third trombones, third and fourth French horns, and second flute may be added.

The music played by such a group may be simple but must be musically worth while. Perfect intonation, good tone, accuracy of reading, and expressive performance are the ends sought.

BAND. 1 unit per year; five periods per week. In order that credit for band may be accepted by the University, the following minimum instrumentation is necessary: eight B-flat clarinets, one flute and piccolo, one oboe, one bassoon, four cornets or trumpets, one baritone, two trombones, two tubas (preferable E-flat and BB-flat), three French horns in F or E-flat, and two percussion instruments. Instruments may be added in the following order: two B-flat clarinets, one additional French horn, one trombone, one E-flat clarinet, one alto clarinet, one bass clarinet, two trombones, and four saxophones (B-flat, E-flat, tenor, and baritone). With such an instrumentation music of a symphonic character is possible. Tone, intonation, accuracy, skill in reading, and expressive performance are the ends to be attained. It

should be a fundamental concept that the band is organized essentially as a musical organization rather than for utility purposes.

APPLIED MUSIC. ½ unit per year, with a maximum of 2 units; one thirty-minute private lesson per week, with one hour of practice daily.

Instruction in applied music taken for credit with teachers outside the regular school system should include: correct position with its relation to the natural production of good tone; scales and arpeggios played in rhythms in major and minor keys; sight reading; in the case of piano, pedaling; in the case of stringed instruments, bowing; the various types of touch; music chosen from the works of composers generally recognized as the best, and representing the various forms, such as march, waltz, gavotte, sonata; in the case of piano and organ, the complete cadence in all keys; correct interpretation as demanded by the pieces of various types studied.

Written application must be made in duplicate by the pupil, with the counter-signature of the parent, to the principal of the high school not later than the second week of the school year, requesting permission to take applied music for a specific amount of credit with a private teacher properly accredited by the State Department of Education. When approved by the principal, one copy of the application should be signed and retained for the school office, and the other copy signed and returned to the student, who will present the approved application to the accredited private instructor when registering with such instructor for work with credit. The teacher shall submit to the principal, on a form provided by the school, a monthly report of the work done by the pupil. At the close of each semester, each pupil taking applied music for entrance credit to the University of Wisconsin shall be examined by a person selected by the principal from a list prepared by the University School of Music. The nature and the scope of each examination shall be determined by the University School of Music.

CHORAL MUSIC. 1 unit per year; five periods per week. This course contemplates choral study in small groups where it will be possible to pay attention to voice training and to the development of individual skill in singing. Sight-reading ability is prerequisite. The material studied must be selected from the standard choral literature and the course must be planned in such a manner that a systematic development of both skill and appreciation will result. In addition to the finished performance of typical examples of choral literature, opportunity should be provided for becoming acquainted with a wide range of the best choral literature.

"B" GROUP SUBJECTS

HISTORY AND APPRECIATION OF MUSIC. 1 unit; five periods per week for one year. A non-technical presentation of those fundamentals of form and design essential for intelligent listening to music, together with a brief historical account of the development of music which will aid in giving perspective to musical understanding. The course should consist of assigned reading, prepared topics, analysis of typical examples, class projects, musical participation, and much *discriminative* listening. To conduct this course successfully, there must be available adequate reference material. Also, for purposes of musical illustration, there must be an excellent phonograph and, if possible, a player-piano, with an adequate supply of acceptable records, rolls, and scores.

THEORY AND HARMONY. 2 units only; five periods per week for two years. The course aims in the first year to provide the student with:

a) Theoretical knowledge of music symbols, terminology, intervals, key signatures, rhythms, and elementary chord structure, and a thorough knowledge of major and minor scales.

b) Ear-training, sight-singing, and dictation (laboratory work).

c) A knowledge of tone relationships with respect to rhythm, melody, harmony, and design.

In the second year the course should begin with simple triads and continue through cadences and sequences up to the dominant seventh chord. The purpose is:

a) To provide a stimulus for the creative impulses of the student, rather than to serve merely as musical grammar.

b) To develop a capacity for harmonic analysis essential for sound musicianship.

The work should consist of both paper and key-board application of all chords and progressions studied.

VOCATIONAL SUBJECTS

AGRICULTURE. Plant husbandry, 1; animal husbandry, 1; farm mechanics, 1; and rural economics, 1.

COMMERCIAL WORK. Bookkeeping, ½ to 2; shorthand, 2; typewriting, 1 if combined with shorthand, otherwise only ½; commercial arithmetic, ½; commercial law, ½; commercial geography, ½; business organization, salesmanship, and office practice, each ½ unit if taken during the last two years.

HOME ECONOMICS. Textiles and clothing, 1 or 2.

HOME ECONOMICS. Food study, 1 or 2.

MANUAL ARTS. Mechanical drawing, 1-4; shop work, 1-2; freehand drawing and design, 1-2; mechanical drawing and shop, 1-4.

PART IV—THE COLLEGES

COLLEGE OF LETTERS AND SCIENCE

G. C. Sellery, Dean

I. COURSES OF STUDY OFFERED

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

Leading to the Degree of Bachelor of Arts
- General Course, page 67
- Course in Commerce, page 83 (School of Commerce)
- Course in Humanities, page 76
- Course in Journalism, page 90 (School of Journalism)
- Premedical Course, page 80

Leading to the Degree of Bachelor of Science
- Course in Chemistry, page 73
- Course in Hygiene (see School of Nursing Bulletin)
- Course in Pharmacy, page 78
- Premedical Course, page 80
- Course in Medical Technology (see Medical School Bulletin)

Leading to the Degree of Bachelor of Music
- Course in Music, page 101 (School of Music)

Leading to the Degree of Bachelor of Philosophy
- General Course, page 70
- Course in Commerce, page 83 (School of Commerce)

II. GENERAL REGULATIONS

1. ADVISERS

Upon being admitted to the University, each student is assigned to a member of the faculty who acts as his adviser during the freshman and sophomore years. The duties of the adviser are to assist the student in selecting his subjects so as to secure a well-rounded education, as well as to aid him in interpreting the requirements and to oblige him to meet them in their proper sequence. The responsibility for the selection of courses rests, in the final an-

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

2. CREDITS, GRADES, AND POINTS

CREDITS. The *credit* is the unit for computing the amount of work required for graduation. It is assigned to one hour of class or lecture work or to two or three hours of laboratory work per week for one semester, together with the necessary preparation. Students in the general courses are expected to earn an average of 15 credits per semester in class and laboratory work, making 30 credits per year, or 120 for the four-year course.

Each student in one of the general courses is required to take class and laboratory work in the amount of 14 to 16 credits per semester. A student who desires to elect fewer than 14 credits must obtain permission in advance from the Dean. A student in his first semester at Wisconsin is not permitted to elect more than sixteen credits. A student who has received a grade of B in *each* subject of the preceding semester may take not to exceed 18 credits. No student will be permitted to count toward graduation more than 18 credits in one semester.

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

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

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

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

POINT-CREDIT RATIO. The general quality of a student's work over a number of semesters is expressed in terms of a point-credit ratio, which is the result obtained by dividing the total number of points he has earned by the total number of credits *earned*. The highest possible quotient is 3.0, which represents a grade of A in every subject; the lowest possible quotient is zero.

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

3. ATTENDANCE

Students are required to be present at the opening of the semester and to remain until the work of the semester is finished. It is expected that every student will be present at all of the classes at which he is due. If at any time a student is absent, he must satisfy his instructors that such absence is for good and sufficient cause. Any student who is absent from any class on the two days immediately preceding or following Thanksgiving day or the Christmas or spring recess without an excuse acceptable to the Junior Dean will be excluded from the semester examinations in those subjects from which he was absent and will be required to write special examinations as if he had received conditions.

4. TRANSFERS

Students transferring from special courses, e.g., Chemistry or Premedical, or from another college of the University, to one of the General Courses, will receive no more than 15 credits a semester toward graduation for work already done, except in semesters in which all standings are B or above, when the maximum is 18 credits. They will not receive credit for technical studies of another college, except to the amount and under the conditions stated under Election of Studies Outside the College, section 16 below. Students transferring are in general required to remove an incomplete, a condition, or a failure incurred in any subject in their former college, provided they can credit the subject in question in this college. If not, the subject may be declared equivalent to a "free elective" by the Executive Committee, on application, after the student has done a semester of satisfactory work in this college. This regulation is applied similarily to transfers within this college. Doubtful cases should be referred promptly to the Executive Committee.

5. ADMISSION WITH ADVANCED STANDING

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

FRESHMAN AND SOPHOMORE YEARS. Inasmuch as freshmen in this college are limited in their choice of subjects to English composition, foreign language, general classics, history, mathematics, natural sciences, and drawing, those in other institutions who wish to receive full credit for their work by transfer here should restrict their choice accordingly. Subjects such as education, philosophy, and sociology taken during the freshman year will definitely not be credited.

6. RESIDENCE REQUIREMENTS

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

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

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

7. DEFICIENCIES

FAILURES. In general, a student who has failed in any subject must remove the failure by repeating that subject in class and securing a passing grade, as soon as the subject is again offered. A failure cannot be removed by correspondence study or by repeating the subject in another institution. Students in this college, however, are required to remove failures only in required subjects, i.e., those chosen to satisfy or those capable of satisfying specific requirements for a given degree, for the teachers' certificate, for any special curriculum or course (e.g., Chemistry Course), or for a major, including also any courses which carry credit toward the major, over and above the minimum requirement thereof. So far as this regulation is concerned, a subject chosen to satisfy any requirements thereby becomes a requirement, and students may not meet the requirement in any other way, but must remove failures in such subjects unless relieved by the Executive Committee as provided in section 4 above. Seniors, including those registered for graduate credits, who incur failures during their last semester of residence must remove such failures in the regular way; this rule applies also to incompletes and conditions incurred during the final semester.

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

The usual way of removing a condition is by a successful final examination taken on the day fixed by the rules. If, however, in a course involving both laboratory and classroom work, the condition has been incurred on account of

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

INCOMPLETES. An incomplete may be given to a student who has carried a subject *successfully* until near the end of the semester and has then been compelled to quit work on account of illness or other cause beyond his control, leaving the final examination, or the final examination and some limited amount of term work undone. An incomplete is not given to a student who stays away from a final examination unless he proves to the instructor that he was prevented from attending as indicated above. In default of such proof he will be failed or conditioned; even with such proof, if his term work has convinced the instructor that he cannot pass, he will be failed or conditioned. A subject marked incomplete must be completed during the student's next succeeding semester of residence at the University or it will lapse into a failure, unless the time limit has been extended in writing by the Executive Committee. A student may not graduate with an incomplete incurred during the final semester of his senior year.

8. HONORS IN SCHOLARSHIP

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

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

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

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

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

9. CLASSIFICATION OF STUDENTS

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

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

ADVANCED STANDING. Students transferring to the University of Wisconsin from other institutions with from 45 to 90 credits shall be regarded as upper-group students after they have completed one semester of work at this University, provided their point-credit ratio for this period is not less than 1.5.

10. SPECIAL STUDENTS NOT CANDIDATES FOR A DEGREE

Persons who meet all the requirements for regular admission to the University, either as freshmen or with advanced standing, may apply to the Executive Committee of the College of Letters and Science for admission as "special students not candidates for a degree." Such individuals must give evidence of seriousness of purpose before their applications for admission on this basis will be approved. A student so admitted may not enter any course for which he lacks the prerequisites as published in announcements and time tables, except by special consent of the instructor therein; nor may he take part in any extra-curricular activity or join any student organization to which the eligibility rules apply. See "eligibility rules" as printed in the first semester time table.

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

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

11. PLACEMENT AND ATTAINMENT EXAMINATIONS

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

Any student who so desires may also take *attainment* examinations in English, history, mathematics, biology, chemistry, physics, and the foreign languages, with the object in view of proving his mastery of certain subjects required for graduation in his college course and thus of absolving the require-

ments altogether. Success in passing an attainment examination entitles the student to substitute some subject of his own choice for the required subject, but does not reduce the total number of credits required for graduation.

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

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

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

Proficiency in a modern language shall be shown by demonstrating (a) adequate comprehension of representative passages from classic and modern authors, which may include matter taken from the student's major field, (b) the ability to understand and pronounce simple phrases in the spoken languages, and (c) some knowledge of the history of the literature and culture of the foreign people. *Proficiency in Greek or Latin* shall be shown by demonstrating (a) the ability to translate into idiomatic English representative passages of prose and poetry from the fields of the student's previous reading, which shall be substantially equivalent to the satisfactory completion of four years of the language in high school and four semesters in the University, or a similar amount differently distributed, (b) some knowledge of each author's work as a whole and of its historical and cultural background, (c) the ability to translate English sentences involving the common grammatical constructions into Greek or Latin prose.

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

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

12. PHYSICAL ACTIVITY REQUIREMENT

Freshman women are required to take three hours of physical education a week for two semesters. Similarly freshman men have the option of taking one of the following:

(a) Physical Education three hours a week for *two* semesters.

(b) Band three hours a week for *two* semesters.

(c) Military Science if elected must be pursued three hours a week for *four* semesters; however, one credit will be granted toward graduation for each of four semesters.

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

Students entering from secondary schools where they have had the basic ROTC course may take the advanced course for one credit in the freshman year in fulfillment of the general option in military science, or they may elect physical education or band instruction. In the sophomore year the advanced course may be elected for two academic credits.

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

13. QUALITY OF WORK

A student in any course requiring 120 academic credits for graduation must secure 60 grade-points and at least 60 credits in order to absolve the academic requirements of the first half of his four-year course, and thereafter must secure 60 grade-points and at least 60 credits in order to absolve the academic requirements of the second half of his four-year course. In other words, the credits in excess of 60 required to secure the 60 grade-points necessary for the first half of the four-year course are counted only toward the first half of the four-year course. A student in any course requiring more than 120 academic credits for graduation must similarly secure half his grade-points and at least half his credits in order to absolve the requirements of the first half of his four-year course, etc.

14. MAJOR STUDY AND THESIS

At the beginning of his junior year each candidate for a degree shall select a major study in one of the divisions* into which the college is organized and shall be assigned an adviser appropriate to the field in which he expects to concentrate. A division may refuse to accept as a major any student with less than a specified point-credit ratio in those subjects of the first two years which lie within the field of concentration, but a deficiency in the general point-credit ratio of a student who has been admitted to the junior year shall not be made a basis for refusal.

Within each division certain fields of concentration have been outlined, and special fields may be arranged for individual students with approval of the Dean. These fields may correspond to the separate departments in the division or be restricted to groups of subjects within a department, or they

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*The term "division" as used in this and the following sections refers to a group of affiliated departments of the college or to any single department not so affiliated. The present groupings are as follows, and all other regular departments are to be regarded as non-affiliated:

Biology—Botany, Zoology

Language and Literature—Art History, Classics, Comparative Literature, Comparative Philology, English, French and Italian, German, Irish, Polish, Scandinavian Languages, Spanish and Portuguese.

Mathematical and Physical Sciences—Astronomy, Mathematics, Physics

Social Sciences—Economics, Cultural Geography, History, Philosophy, Political Science, Sociology and Anthropology.

may include courses in more than one department. The regular fields at present authorized are announced under the separate departmental headings. (See Courses of Instruction, 108ff.) A few fields which cut across departmental lines or are otherwise irregular are announced below.

The general requirements of the major are as follows: (a) A maximum of 60 credits may be prescribed by the division, including not more than 40 credits within the field of concentration, and not more than 20 credits outside the field of concentration, of which as many as ten may be outside the boundaries of the division. Of the total number of credits required for graduation at least 80 must be secured outside the major department or the special field of concentration, and any course which a student may credit toward his major must be credited toward it. In the major field of concentration, at least 15 credits and 15 grade-points in advanced work must be secured at Wisconsin. Some of the credits in the major may be earned during the first two years. (b) At least as many grade-points as credits must be earned in the major. (c) A thesis of 4-6 credits may be prescribed as part of the major, as specified in the detailed announcements of the major requirements.

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

15. SPECIAL FIELDS OF CONCENTRATION

Medical Science. A major in Medical Science is authorized for students in the General Courses who pursue the regular three-year premedical sequence and meet both their premedical and special degree requirements. In their senior year such students register in the Medical School as well as in the College of Letters and Science. For a detailed outline of the premedical work, see page 80.

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

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

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

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

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

Supervised Individual Reading. Students who have passed the test for either advanced or intermediate knowledge in a given language and whose general record is of considerably more than average grade, may register for additional language credit, if, in order to further improve their fluency and accuracy in the use of foreign texts, they desire to read under supervision works in the foreign language dealing with subjects related to their major field of study. The texts to be read, which should be of a general and not too technical character, will be agreed upon in consultation between the student's major department and the language department concerned. Credit for such reading will be language credit based on an examination given by the language department and not credit in the student's major department. Arrangements for such individual reading require the approval, in advance, of the language department concerned and the Dean of the college.

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

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

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

	Credits
Art History 157—Patterns and principles of Spanish Art (or cognate of Spanish art offered by this department)	2
Economics 151—Latin America: economic development and trade	3
Geography 102—Geography of South America	3
Geography 111—Geography of Middle America	2

History 119—Latin American History History 130—History of Spain, 1000-1825	6
Journalism 121—Reporting Hispanic affairs	2
Political Science 131—The United States and Latin America	3
Spanish 21—Survey of Spanish literature	6
Spanish 47—Spain and Spanish America of today	4
Spanish 117—Commercial and industrial language practice in Hispanic countries	2
Spanish courses numbered above 100 in the fields of language, besides 117 above, 2 credits; literature 4 or 6 credits; and civilization of Spain and Spanish America, 2 credits	8
Total	41

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

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

Art. Hist. 153—Representative painters of the 17th century
Art. Hist. 159—Development of American art
Com. 8 and 9—Accounting
Com. 13—Marketing methods
Com. 31—Business statistics
Econ. Com. 105—Money and banking
Com. 114—Marketing management
Econ.-Com. 136—Transportation problems
Econ.-Com. 137—Corporation finance
Econ.-Com. 156—International trade
Econ. 30—Economic statistics
Econ. 126—International trade in agricultural products
Econ. 153—International finance
Geog. 101—Geography of Europe
Geog. 103—Geography of North America
Geog. 107—Geography of the Mediterranean region
Geog. 127—Industrial geography of the U. S.
Hist. 116—American colonial history
Hist. 120—American foreign relations
Hist. 122—American economic life
Hist. 138—History of Europe, 1789-1871
Journ. 120—Interpreting foreign news
Pol. Sci. 118 and 119—Problems of international law: peace and war
Pol. Sci. 123—American diplomacy
Pol. Sci. 125—Survey of world politics
Pol. Sci. 128—Comparative government
Pol. Sci. 137—International organization and the League of Nations
Pol. Sci. 138—Contemporary problems in international relations
Portuguese 1, 10 and 15

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

Students majoring in Hispanic studies who wish to obtain the University Teachers' Certificate should transfer to the School of Education and fulfill the requirements for a teaching major in Spanish. (See page 71). They will follow Pre-education Sequence IV. Consult announcement of the School of Education.

General Major in American Institutions. This major in the Division of Social Sciences is especially designed (a) for students in the School of Education and (b) for students planning to enter the Law School. It is open, however, to all candidates for the bachelor's degree.

The major is administered by a Divisional Committee of Advisers representing the Departments of Sociology and Anthropology, Economics, Geography,

History, Philosophy, and Political Science. The major includes the following requirements:

1. A minimum of *forty-five* credits in the Division so selected as to form a coherent group of courses.

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

3. At least *twenty-nine* credits (or such additional number as to total, with the history credits, at least forty-five credits), to be earned in three departments in the courses listed in section 4. Not more than *six* credits earned in courses numbered under 100, in addition to the history requirement stated above, will be counted toward the major.

4. The courses from which selections may be made are listed herewith by department, number, title, and credits.

Sociology and Anthropology

		Credits
46	Introduction to anthropology	3
125	Rural sociology	2
132	Introductory social statistics	3
139	Social psychology	3
140	General sociology	3
141	Poverty and dependency	3
160	Marriage and the family in America	2
161	Criminology and penology	3
163	Population problems	2
177	Social legislation	2
192	Rural regional planning	2
197	Personality and social adjustment	3

Economics

1	General economics	4
19	Economic history of the U. S.	3
103	Public expenditures and public debts	2
105	Money and banking	3
117	Outlines of land economics	3
119	The evolution of industry	3
120	Social insurance	2-3
122	Labor problems	3
123	Labor legislation	3
124	Taxation	3
127	Cooperative marketing	3
129	Cooperative management problems	2
133	Financial history of the U. S.	3
135	Railway transportation	2-3
136	Transportation problems	2-3
137	Corporation finance	3
142	Public utilities	3
145	American labor history	3
146	Government and business	3
152	Farmer movements	2
174	The labor market	3
191	The credit system	3

Geography

3	Economic geography	3
6	Regional world geography	3
103	Geography of North America	3
104	Geography of Wisconsin	2
127	Industrial geography of the U. S.	3
128	Conservation of natural resources	3

History

		Credits
1	Medieval history	2-3
2	Modern European history	2-3
3	European civilization since fall of Rome	5
4	History of the United States	3
5	English history	2-3
10	Ancient history	2-3
111	History of the West	3-4
113	American social history	3-4
114	The era of sectional controversy	2-3
115	The American revolution	2-3
116	American colonial history	2-3
117	American constitutional history	2-3
118	Civil war and reconstruction	2-3
120	American foreign relations	2-3
122	American economic life	2-3
124	Recent history of the U. S.	3-4
141	English constitutional history	3

Philosophy

11	Elementary logic	3
21	Introduction to philosophy	3
25	Philosophy and the American enterprise	3
41	Ethics	3
111	Applied logic	3
120	Philosophy of science	3
132	History of modern philosophy	3
139	American philosophers	3
200	The development of American thought (Graduate seminar open to seniors)	

Political Science

7	American government	3
13	Municipal government	3
112	Constitutional law	3
122	Political parties and public opinion	3
123	American diplomacy	2
125	World politics	3
126	Legislation	2
131	The U. S. and Latin America	3
134	County and township government	2
135	Municipal administration	3
137	International organization and the League of Nations	3
139	State government	3
140	Far Eastern politics	3
143	Introduction to public administration	3
144	Police power and social legislation	3
152	Legislation for the conservation of natural resources	3
165-6	American political thought	3

16. ELECTION OF STUDIES OUTSIDE THE COLLEGE

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

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

The Schools of Commerce, Journalism, Music, and the Library School are administrative subdivisions of the College of Letters and Science. Students may elect certain (unstarred) studies in the departments of Commerce and Journalism without special permission; rules for enrollment in music subjects may be found on page 101 and for admission to the Library School on page 97. Non-pharmacy students are not permitted to elect studies in pharmacy without written permission of the Dean of the College.

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

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

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

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

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

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

Agricultural Bacteriology 1, 126, 130
Art Education 50, 51, 52, 54, 55, 56, 62, 70, 71, 120, 140, 160, 168
Drawing 1, 2, 3
Education 31, 101, 102, 103, 112, 117, 128
Educational Psychology 19, 41, 107, 109, 119, 120, 123

In the summer session, courses in educational methods are also open for course credit to students in Letters and Science who wish to qualify for the State Teachers' License, but during the regular year the methods courses and Education 75 (Psychology and practice of teaching) are both definitely closed to students not actually registered in the School of Education.

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

MEDICAL SCHOOL. Candidates for the B.A. and for the B.S. degree in medical science are permitted to major in medical science; they may register in the Medical School in their senior year and may count toward their degree the full work of the first-year medical course, 36 credits. Such students must earn at least 90 credits in Letters and Science and meet all the regular premedical requirements as outlined on page 80.

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

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

register as a senior in the College of Letters and Science (subject to the provisions of section 13), with a grade-point average of 1.3.

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

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

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

Any major in Letters and Science, energetically carried with the general degree requirements, will furnish adequate preparation for the study of law. But the Law School Faculty believes that, as a rule, the student intending to study law should choose a field of concentration in the division of the social sciences (economics, cultural geography, history, philosophy, political science, sociology), and that, in any event, when he begins the study of law he should have acquired some understanding of the economic and political life of the United States and of Anglo-American constitutional history, as well as some acquaintance with philosophy and social psychology. They recommended especially the following courses: Economics 1; History 4, 5, 117, 141; Philosophy 11; Political Science 7 or 101; Sociology 46, 139. They recommend also, for their bearing on certain phases of the law: Economics 5, 19, 123, 124, 133, 137, 142; Philosophy 21, 41, 43, 136, 146; Political Science 13, 123, 125, 139, 165, 245; Sociology 161.

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

18. ELECTION OF STUDIES IN THE LAW SCHOOL

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

19. UNIVERSITY TEACHERS' CERTIFICATE

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

Students not in one of the special courses who wish to be recommended for the University Teachers' Certificate are required to transfer to the School of Education in the junior year as candidates for the degree of Bachelor of Science (Education). See page 71.

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

I. Completion of all regular requirements of the special course, plus four additional credits and four grade-points (if only 120 are ordinarily required for graduation from that course).

II. Completion of the following professional requirements:

	Credits
Educ. 75—Psychology and practice of teaching (junior year)	5
A course in the teaching of the major subject (senior year)	5
Educ. 31—Principles of secondary education (senior year)	3
*Electives in the Department of Education	5
	18

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

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

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

20. ADVANCED INDEPENDENT WORK

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

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

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

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

A third sort of independent work, not necessarily involving candidacy for honors, permits "upper-group" students to elect independent work in the field of their major in lieu of a regular course or courses. Such an election must have the written approval of the instructor, the chairman of the department and finally of the dean, in order to be valid. Such elections shall be placed on the student's semester study list under the course number 180, and the approvals shall be recorded thereon. Students electing this type of independent study must pass a comprehensive examination on the entire work offered for the major or submit a written report or thesis or pass a special written examination on the independent work; arrangements for one of these three forms of testing shall be included in the original program outlined by the student with the approvals of instructor, chairman, and dean as aforesaid. Such reports, theses, and examinations shall be kept in the records of the department and shall be available for future reviews of the employment of the "180" course.

III. THE B.A. GENERAL COURSE

21. OUTLINE OF CURRICULUM

(a) ENGLISH: 10 or 12 credits, as follows: 6 credits in freshman composition; 4 or 6 credits in sophomore literature. (See section 22a for exemption from freshman composition.)

(b) SCIENCE-MATHEMATICS-HISTORY: Two of the following: natural science, 10 credits, *in a continuous year course or 10 credits in elementary survey courses;* mathematics, 8 credits; history, 6 credits, *in a continuous year course.* If the student has had no history or no science in high school, he is advised to take a year course in the subject lacking. A student is not permitted to repeat in college, for credit, the equivalent of a course in mathematics which he has had in high school.

Under continuous year courses in natural science are included botany, zoology, biology (a combined course made up of a semester of botany and a semester of zoology), chemistry, physics, physical geography, and geology. All are courses of five credits per semester for two semesters, with laboratory work, or field work in geography and geology.

The elementary science surveys are semester courses less specialized or professional than the continuous year courses mentioned above. These surveys which are offered in astronomy, botany, chemistry, physical geography, geology, physiology, physics, and zoology, involve either laboratory or field work and carry three or four credits each. (See section 22b below.) The student is not permitted to split the natural science option, i.e., to take one semester of a year course and two survey courses; he must present 10 credits in either one or the other.

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

I. *By presenting 32 credits,* in one, two or three of the foreign languages specified below. These credits may have been earned partly in high school and partly in the University, or wholly in the University. Eight is the minimum

number of credits in a single language which will be accepted toward this requirement; at least 16 credits must be in one language.

II. *By passing attainment examinations* which shall determine (1) proficiency, i.e., advanced knowledge, in one foreign language, or (2) intermediate knowledge, i.e., reading knowledge, in two languages. (See section 11.) When attainment examinations are used to satisfy the foreign language requirement, the language credits already earned in college count as electives toward the 120 required for graduation.

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

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

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

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

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

22. STUDIES OF THE FRESHMAN YEAR

(a) English. Only one subject is definitely required of all first-year students, viz., English 1, (freshman composition), three credits per semester. Those Letters and Science freshmen, however, who pass the exemption examination in Freshman English are not required to take English 1 in the University. (This examination is given at the beginning of the second week in residence.) They may, as freshmen, elect in its place English 30 or 33 (the B.A. sophomore requirement), or English 2 or 3, or they may postpone further work in English to the sophomore year.

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

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

The other subjects, sufficient to make up a program of 14, 15, or 16 credits for the semester, are to be chosen from the groups listed below, composed of subjects which extend for two semesters, unless otherwise indicated.

(b) SCIENCE-MATHEMATICS-HISTORY. At least one subject must be chosen from this group, but not more than five credits per semester may be taken in any single subject.

SCIENCE—Continuous year courses:
Biology 1—five credits (Botany 1 in the first semester, followed by Zoology 1 in the second semester, or Zoology 1 followed by Botany 1)
Botany 1, 2—five credits per semester
Chemistry 1—five credits per semester
Geography 1, 2—five credits per semester
Geology 1—five credits per semester
Physics 1 or 31—five credits per semester
Zoology 1, 2—five credits per semester

*SCIENCE—Elementary survey courses:
Astronomy 17—three credits, first and second semesters
Botany 17—three credits, second semester
Chemistry 17—four credits, second semester
Geography 17—four credits, first semester
Geology 17—three credits, second semester
Physics 17—four credits, second semester
Physiology 17—four credits, first semester
Zoology 17—three credits, first semester

MATHEMATICS—Semester courses repeated each semester:
Mathematics 1a (college algebra)—four credits
Mathematics 1b (algebra and trigonometry)—four credits
Mathematics 31 (college algebra)—four credits
Mathematics 2 (trigonometry and analytic geometry)—four credits
Mathematics 3 (analytic geometry)—three credits
Mathematics 7 (theory of investment)—four credits

In general students are required to present one full year of mathematics to satisfy the mathematics option for the B.A. degree. However, students who have successfully passed either Mathematics 2, or have had trigonometry and have passed Mathematics 3, will be regarded as having fulfilled the mathematics option for the B.A. degree. If they complete the requirements of the School of Commerce, Mathematics 7 may be substituted for Mathematics 2 or 3. Mathematics 7 will not count towards the optional requirement for the B.A., B.S., or Ph.B. degree except for students graduating in the School of Commerce.

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

Students may take more than one of these courses in the freshman year. If they elect two of: History 1, 2, 5, or 10, they will do the full work of one course receiving three credits; in the other course they will omit much of

*Only candidates for the B.A. degree may take these survey courses to meet the basic science option. Ph.B. degree students and others may, however, take them as free electives, provided they have not had (in college) the whole or part of the year course in the subject.

the collateral reading and reports, and will receive two credits. If only one of these courses is taken, it must be for three credits; if two or more of them are taken, the additional ones must be taken for two credits per semester. Students who take History 3 cannot elect History 1 or 2; they may take History 5 or 10, each for 2 credits a semester.

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

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

A student who continues in college a foreign language which he has studied in high school is assigned to a class on the basis of a placement test (see section 11) and is subject to promotion or demotion at the end of the first few weeks as determined by the quality of his classwork; a second test may then be given if the student should be dissatisfied with his placement.

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

(d) FREE ELECTIVES

Drawing 1, 2 (mechanical drawing)—three credits per semester
Art Education 50, 51 (freehand drawing)—three credits per semester
Classics 41 (Greek life and literature)—two or three credits, first semester
Classics 42 (Roman life and literature)—two or three credits, second semester
Classics 51 (Classical Mythology)—one or two credits, first semester

23. STUDIES OF THE SOPHOMORE YEAR

In the sophomore year the student must continue his English for two semesters, as well as his foreign language, unless these requirements have already been met; likewise his history, mathematics, or science, unless this group requirement has been absolved in his freshman year, together with additional Letters and Science courses necessary for a program of 14 to 16 credits.

IV. THE PH.B. GENERAL COURSE

24. OUTLINE OF CURRICULUM

(a) ENGLISH: 6 credits in freshman composition are required of all (see section 22a); in addition, 4 credits in intermediate composition are required of all excepting those who fulfill option 3 under (c) below, or who complete successfully one year of foreign language in college, or who carry English 3 for a year.

(b) SCIENCE AND MATHEMATICS:* A total of 20 credits in one of the following combinations:

1. Science, 20 credits
2. Mathematics, 20 credits
3. Science, 10 credits; Mathematics, 10 credits
4. Science, 12 credits; Mathematics, 8 credits

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

All students taking science under this requirement must elect, for the first 10 credits, one of the continuous year courses approved for the B.A. degree (see section 22b). For those taking 20 credits in science, the 10 additional credits may be taken either in another continuous year course, or in courses in the same science which include laboratory or field work; the 2 additional credits, for those taking 12 credits in science, must be in courses in the same science which include laboratory or field work, except that where Geography 1-2 is elected, 5 credits of Geology 130 must be taken to satisfy this requirement.

(c) Two of the following groups:

1. Philosophy and psychology; or mathematics—10 credits in one of the two. Mathematics may not be offered both here and under (b) above.
2. History, 10 credits, to be taken in year courses, excepting that courses in the "hundred" group may be credited by semesters.
3. Foreign language, 14 credits (to be earned in college) not more than 8 of which may be in a beginner's course; or intermediate knowledge in one foreign language, as disclosed by an attainment examination (see section 11).

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

25. STUDIES OF THE FRESHMAN YEAR

The subjects of the B.A. course, with the exception of elementary science surveys which may be taken as free electives only, are open to freshmen in this course, and on the same terms. (See section 22).

26. STUDIES OF THE SOPHOMORE YEAR

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

V. TRANSFER TO THE SCHOOL OF EDUCATION

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

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

Students who expect to enter the School of Education are advised to adapt the requirements of the first two years of one of the General Courses to the requirements for graduation from the School of Education, in order to obviate the necessity of spending more than four years in earning the B.S. (Education)

degree. Any one of the four special sequences listed below will serve to accomplish this purpose; numbers I and III fulfill the Ph.B. requirements and numbers II and IV the B.A. requirements. Before transfer to the School of Education can be approved, substantial progress toward completion of the general requirements and the selected pre-education sequence must be made. The work of the first two years should include one or more courses in the field in which the student expects to pursue a teaching major.

PRE-EDUCATION SEQUENCES—Students who expect to transfer to the School of Education should select one of the following sequences:

SEQUENCE I

A. No foreign language required.
B. Required: English composition, 10 cr. (English 1 and 2); history, 10 cr.†; social sciences, 6 cr.‡; mathematics or philosophy, 10 cr.**; natural science, 20 cr.* in regular year courses.

SEQUENCE II

A. Required: Intermediate knowledge of one language.
B. Required: English literature, 4-6 cr.; English composition, 6 cr.; history, 6 cr.†; social sciences, 6 cr.‡; mathematics, 8 cr. or philosophy, 6 cr.**; natural science, 10 cr.* in elementary survey courses or in regular year courses, or both.

SEQUENCE III

A. Required: Intermediate knowledge of one language.
B. No English literature required. Required: English composition, 6 cr.; history, 6 or 10 cr.†; social sciences, 6 cr.‡; mathematics, 10 or 8 cr. or philosophy 10 or 6 cr.**; natural science, 20 cr.* in regular year courses. (If history is elected for 6 credits, mathematics or philosophy must be elected for 10 credits; if history is elected for 10 credits, mathematics or philosophy should be elected for 8 or 6 credits, respectively.)

SEQUENCE IV

A. Required: Proficiency in one foreign language, or intermediate knowledge in two foreign languages, or intermediate knowledge in one foreign language plus 10 cr. in literature courses in that language.
B. Required: English composition 6 cr.; English literature, 4-6 cr.; two of the following: (a) history, 6 cr.† and social sciences, 6 cr.‡; (b) mathematics, 8 cr.; (c) natural science, 10 cr.* in elementary survey courses or in regular year courses or both.

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

**Philosophy 21 (Introduction to philosophy), 3 credits, and Philosophy 11 (Elementary logic), 3 credits are required. (Mathematics 7 may not be counted toward this requirement.)

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

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

VI. COURSE IN CHEMISTRY

J. H. MATHEWS, DIRECTOR, PROFESSOR OF CHEMISTRY

The purpose of the Course in Chemistry is to train competent chemists for industrial, governmental, and teaching positions. The United States is the leading nation in chemical industries, and our continued industrial success is largely dependent upon the ability of our universities to supply the demand for men with adequate chemical training. Many industries are essentially chemical in character and have long employed chemists; others, because of the necessity of meeting changing conditions and keener competition, are finding it necessary to employ chemists to originate, simplify, and control plant processes. Chemical control and research are necessary in practically every industry.

The principal departmental bureaus of the Government employ a considerable number of chemists, both for research and control work. All of the larger cities require skilled chemists, as do many of the various state commissions and the federal and state experiment stations. The development of agriculture is largely dependent on the services of the chemist. Many industries are establishing central experimental and research laboratories for the intensive study of the specific problems relating to those industries. Positions in those laboratories are most desirable, as they afford specialized training which leads to the attainment of excellent positions. Research laboratories are being established for a great variety of purposes, and these laboratories must ever look to the universities for trained chemists. For these positions, especially, it is highly desirable that the four-year course in chemistry be followed by graduate work.

The thoroughly trained teacher of chemistry has an exceptional opportunity to play an important role in the social, economic, and industrial development of the nation. His opportunities to aid in the dissemination of useful knowledge, in the development of a wider appreciation of scientific knowledge, and to contribute to scientific progress both by his teaching and his opportunity for personal research, are such as to make this profession unusually attractive to those who have a sincere desire to serve their fellow men.

The curriculum of the Course in Chemistry is designed to offer a broad foundation in the chemical and related sciences. It does not profess to train chemists for special industries, for each industry has its special problems and special methods. Interwoven with the courses in chemistry are courses designed to broaden the understanding and to round out educational training. Several electives are provided, and it is required that a certain number of these be studies other than chemistry. Students are expected to take a sufficient number of cultural studies to acquire the proper educational balance.

Three options are offered: a general option, an option for industrial chemists and an option for food or sanitary chemists. Attention is called to the fact that specialized training along the lines of soil chemistry and physiological chemistry may be obtained by election of courses in these subjects along with the required studies of the general course.

REQUIREMENTS. Students having the entrance requirements prescribed for the College of Letters and Science may be admitted to this course. It will be observed from the outline of the curriculum below that the work of the freshman year is identical in each of the three fields of study, and in all of them a year each of general inorganic, analytical, organic, and physical chemistry is required. The course in English is the composition course required of all freshmen in the University. The equivalent of at least courses 2a and 2b in German and courses 1a and 1b in French is required for graduation from the

Course in Chemistry, but high-school work in these languages may be counted toward the requirement. Admission to the junior year in the various options of the Chemistry Course is restricted to those students who have a grade-point average of 1.5 or better for courses in chemistry, mathematics, and physics combined.

In each of the options, 130 credits are required for graduation. Students will frequently find it desirable to absolve a part of the requirements during one or more summer sessions. The work of the senior year includes the writing of a thesis, embodying the results of a detailed experimental investigation.

Each year at least one opportunity for an extended industrial trip will be offered. The Middle West has become an important center of chemical industries, and nearly all of the more important of them may be seen in operation here. It is expected that the students taking the Course in Chemistry will avail themselves fully of these opportunities to visit representative industrial plants. At least one such trip must be taken during the course. While it is not specifically required for graduation, students are urged to devote at least one of their summer vacation periods to practical chemical work in some chemical industry.

COURSE IN CHEMISTRY

LEADING TO THE DEGREE OF BACHELOR OF SCIENCE (CHEMISTRY)

ALL OPTIONS

FRESHMAN YEAR

First Semester	Credits	Second Semester	Credits
Chem. 1a—General chemistry	5	Chem. 1b—General chemistry and qualitative analysis	5
Math. 1 or 31—College algebra	4	Chem. 3—Qualitative analysis	1
German	4	Math. 2—Trigonometry and analytic geometry	4
Engl. 1a—Freshman composition	3	German	4
Physical activity requirement	0-(1)	Engl. 1b—Freshman composition	3
		Physical activity requirement	0-(1)
	16		17

GENERAL OPTION

SOPHOMORE YEAR

Chem. 11a—Quantitative analysis	5	Chem. 11b—Quantitative analysis	5
German	3	German	3
Physics 31—General physics	5	Physics 31—General physics	5
Math. 5a—Differential calculus	3	Math. 5b—Integral calculus	3
	16		16

JUNIOR YEAR

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

SENIOR YEAR

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

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

OPTION FOR INDUSTRIAL CHEMIST

SOPHOMORE YEAR

Same as for sophomore year of General Option

JUNIOR YEAR

Same as for junior year of General Option

SENIOR YEAR

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

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

OPTION FOR FOOD CHEMIST OR SANITARY CHEMIST

SOPHOMORE YEAR

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

JUNIOR YEAR

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

SENIOR YEAR

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

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

VII. COURSE IN HUMANITIES

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

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

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

REQUIREMENTS. The general requirements of this course are identical with those of the B.A. General Course, and the regulations pertaining thereto also govern students in this course, excepting as modified by the following special requirements and rules. (See pages 50-71). The major must be chosen from the fields of language, literature, natural science, economics, history, political science, mathematics, or philosophy. Professional subjects, excepting such as may be required for the teachers' certificate, are not open for election by students in this course. Some member of the committee in charge will be assigned as the student's adviser and will inform him whether or not any given subject is professional. Upon successful completion of the requirements outlined below, including 120 academic credits and at least an equal number of grade-points, the student will be admitted to the degree of Bachelor of Arts (Humanities).

The student will meet the following special requirements:

(a) 12 credits in English composition and literature;

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

(1) 24 credits in Latin; (2) 14 credits in Greek—to be absolved by combining high-school units and college credits as described in section 21c, page 67; (3) a reading knowledge of French; (4) a reading knowledge of German—as demonstrated to the satisfaction of the committee in charge. (These requirements must not be confused with the regular attainment examinations which may be offered for the B.A. and Ph.B. General Courses.);

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

(d) 10 credits in natural science;

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

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

COURSE IN HUMANITIES

LEADING TO THE DEGREE OF BACHELOR OF ARTS (HUMANITIES)

RECOMMENDED SEQUENCE

FRESHMAN YEAR

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

SOPHOMORE YEAR

Engl. 30a—General survey of literature	3	Engl. 30b—General survey of literature	3
Foreign language	3-5	Foreign language	3-5
Science	5	Science	5
Required subject (see list below)	3-4	Required subject (see list below)	3-4
	14-17		14-17

SUBJECTS RECOMMENDED FOR SOPHOMORE YEAR IN FULFILLMENT OF REQUIREMENTS

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

COURSE IN CLASSICAL HUMANITIES

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

VIII. COURSE IN PHARMACY

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

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

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

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

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

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

ADVANCED WORK. Like the sister profession, medicine, pharmacy is in need not only of the general practitioner, but also of the specialist. For the preparation necessary to equip such specialists the University offers graduate courses. Accordingly, the graduate courses in pharmacy make up an important part of the work of the department, advanced courses and research facilities in pharmacy, pharmaceutical and plant chemistry, and pharmacognosy being provided. Graduates who desire to prepare themselves as chemists for manufacturing establishments, as analytical, food, or sanitary chemists, will find that the graduate work in pharmacy, not less than in other departments of the University, offers excellent opportunities for specialized study and research.

WISCONSIN PHARMACEUTICAL RESEARCH FUND. Recognizing the growing importance of research to the science and art of pharmacy, the pharmaceutical alumni and other friends of the University have established a fund, known as the Wisconsin Pharmaceutical Research Fund of the University of Wisconsin. The first contributions to this fund, amounting to $1,000, were presented in June, 1917, and accepted by the Regents in the name of the University. Since 1917, by gifts and accrued interest, the fund has increased until it now totals

more than $10,000. Half of the income of this fund may be devoted directly to pharmaceutical research while the remainder goes to augment the principal. Thus a permanent and ever-increasing endowment for pharmaceutical research at the University of Wisconsin is assured.

LABORATORIES. The pharmaceutical laboratories are located on the third and fourth floors of the Chemistry Building. On the third floor they consist of a dispensary and laboratories for pharmaceutical technique, practical pharmacy, pharmaceutical and plant chemistry, and research laboratories. On the fourth floor are located the Frederick B. Power Pharmaceutical Library, the drug cabinet, the milling room, a laboratory for extraction and distillation purposes, equipped with steam and vacuum apparatus, a laboratory for the study of pharmacognosy, and a research laboratory.

PHARMACEUTICAL EXPERIMENT STATION. In accordance with an act passed by the legislature in 1913, a Pharmaceutical Experiment Station has been established in connection with the Department of Pharmacy. The object of the Station, as outlined by the law establishing it, is two-fold:

(1) To cooperate with the Bureau of Plant Industry of the Department of Agriculture in the maintenance of the northern station for the cultivation of medicinal plants and to disseminate such information as may lead to the proper cultivation of medicinal plants and the production of high-grade vegetable drugs in this State; and

(2) To serve the public at large by cooperation with both pharmacists and physicians in securing for the sick the best medicines that pharmaceutical science and art can provide, and further, by cooperation with the State Board of Pharmacy, the State Board of Health, and the Dairy and Food Commission, to bring about these results.

The staff of the Experiment Station is made up of members of the faculty of the Department of Pharmacy. A garden of about forty acres for the scientific cultivation of medicinal plants and a laboratory for the investigation of problems connected with the preparation and testing of crude drugs, pharmaceutical preparations, and chemicals is maintained. Reports on the work of the Experiment Station are published from time to time and distributed to persons interested. For copies of these reports application should be made to the Director.

COURSE IN PHARMACY

LEADING TO THE DEGREE OF BACHELOR OF SCIENCE (PHARMACY)

RECOMMENDED SEQUENCE

FRESHMAN YEAR

First Semester	Credits	Second Semester	Credits
Engl. 1a—Freshman composition	3	Engl. 1b—Freshman composition	3
Foreign language	4	Foreign language	4
Chem. 1a—General chemistry	5	Chem. 1b—General chemistry	5
Pharm. 1—Orientation in pharmacy	3	Pharm. 1—Orientation in pharmacy	3
Physical activity requirement	0-(1)	Physical activity requirement	0-(1)
	15-16		15-16

SOPHOMORE YEAR

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

JUNIOR YEAR

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

SENIOR YEAR

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

IX. PREMEDICAL COURSE

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

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

The candidates for the B.S. degree must complete a year of freshman

English, a year of elementary or more advanced mathematics in college, Zoology 105, and one year of organic chemistry.

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

PREMEDICAL CURRICULA

LEADING EVENTUALLY TO THE DEGREE OF BACHELOR OF ARTS

RECOMMENDED SEQUENCE FOR THE THREE-YEAR COURSE

FRESHMAN YEAR

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

SOPHOMORE YEAR

Engl. 30a or 33a—Sophomore literature	3-2	Engl. 30b or 33b—Sophomore literature	3-2
*Chem. 20, 21, or 120, 121—Organic chem.	4-5	Zoology 2 or 104	5
Zoology 1—Animal biology	5	French 10b or German 2b	3
French 10a or German 2a	3	Elective	5
	15-16		15-16

JUNIOR YEAR

Physics 1a or 31	5	Physics 1b or 31	5
Foreign language	4-5	Latin 2—Caesar	5
Latin 1—Elementary Latin	5	Foreign language	4-5
Electives if foreign language and Latin were pursued in high school	(10)	Electives if foreign language and Latin were pursued in high school	(10)
	14-15		14-15

*Organic Chemistry 120, 121, is a year course, and if elected, must be continued for the second semester.

PREMEDICAL CURRICULA

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

RECOMMENDED SEQUENCE FOR THE THREE-YEAR COURSE

FRESHMAN YEAR

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

SOPHOMORE YEAR

First Semester	Credits	Second Semester	Credits
Chem. 120, 121	4	Chem. 120, 121	4
Zoology 1—Animal biology	5	Zoology 104—Comparative anatomy	5
French 10a or German 2a	3	French 10b or German 2b	3
Free electives	3	Free elçctives	3
	15		15

JUNIOR YEAR

Physics 1a or 31	5	Physics 1b or 31	5
Zoology 105—Embryology	3	Latin 2	5
Latin 1	5	Free electives if Latin has been pursued in high school	10
Free electives if Latin has been pursued in high school	7		
	15		15

SCHOOL OF COMMERCE

FAYETTE HERBERT ELWELL, DIRECTOR, PROFESSOR OF ACCOUNTING

The School of Commerce of the University of Wisconsin, organized in September, 1900, offers a three-year curriculum including junior, senior and graduate years.

REQUIREMENTS FOR ADMISSION. To be eligible for admission to the School of Commerce, students must (1) have been regularly promoted to the Junior Year in either of the general courses (B.A. or Ph.B., see section 9, page 56) and (2) have a grade-point average of 1.3 or better for their work in the College of Letters and Science, this work to include Economics 1a and Commerce 8 and 9. Students not presenting Economics 1a and Commerce 8 and 9 may be admitted, at the discretion of the Director of the School, on probation. The work of the first two years should, to avoid delay in the progress of the student, include 4 credits in general economics (Economics 1a), it should also include Mathematics 7, Theory of investment, Commerce 8, Elements of accounting and Commerce 9, Intermediate accounting, all of which are required for graduation. Students are advised to take Geography 5 and 6, Regional world geography, but they should *note* that these courses count only as general electives, not toward absolving the natural science option. Students are also urged to elect Business ethics (Commerce 43) and at least one course in speech.

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

FRESHMAN YEAR

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

SOPHOMORE YEAR

General economics (Econ. 1a)	4	4
Accounting (Com. 8-9)	7	7
English literature (Engl. 30 or 33)	--	4 or 6
Foreign language	--	6–8
Electives	4	11–0
History	4	--
Science or mathematics (to complete 20 cr.)	2	--
English—intermediate composition (Engl. 2a-2b)	4	--
Philosophy and (or) psychology	5–7	--
	30–32	28–32

REQUIREMENTS FOR THE BACHELOR'S DEGREE

I. General Course

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

2. Completion of the general requirements in foreign language, science, history, mathematics, philosophy, psychology, etc., for either a B.A. or a Ph.B. degree in the General Course of the College of Letters and Science. (These general requirements should be met as far as possible during the freshman and sophomore years.) See pages 67-71.

3. Completion of the following courses. With the exception of Commerce 109, these courses should preferably be completed by the close of the junior year:

	Credits
(a) Commerce:	
Commerce 6—English in business	3
Commerce 8-9—Accounting (sophomore year)	7
Commerce 13—Marketing methods	3
Commerce 31—Business statistics	3
Commerce 105—Money and banking	3
Commerce 142—Public utilities	3
	22
(b) Economics:	
Economics 1a—General economics (sophomore year)	4
(c) Free electives in Commerce and Economics	12
	38
(d) Commerce 109—Legal aspects of business relations (senior year)	2
(e) Mathematics 7—Theory of investment (freshman year)	4
	44

4. Completion of not less than 38 nor more than 58 credits in the fields of commerce and economics; at least as many grade-points as credits must be earned in this group. A maximum of ten credits beyond the 38 specified above within the Departments of Commerce and Economics and a maximum of ten additional credits in other departments of the University may be prescribed by the professor in charge of the student's special field of interest. The intent of this rule is to restrict to 58 credits the total requirement which may be placed upon the student by the School of Commerce and the professor in charge.

Students whose grade-points in commerce and economics do not exceed their credits by at least fifty per cent by the beginning of their senior year

are required to diversify the work of the major and may not offer more than three courses (excluding the above required basic courses) from any one of the fields described below for upper-group students.

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

I. Accounting

Credits

Accounting majors must take courses 181, 182, 183, 184, 186, 187. These courses should be elected in the following sequence:

181 and 182 in the junior year; 183 and 187 in the first semester of the senior year; 184 and 186 in the second semester of the senior year.

Com. 181—Advanced accounting problems 3
Com. 182—Cost accounting ---------- 2
Com. 183—Accounts of consolidations and income taxes---------- 2
Com. 184—Auditing ---------- 3
Com. 185—Analysis of financial reports-- 2
Com. 186—Accounting systems---------- 2
Com. 187—Governmental accounting------ 2
Com. 188—Budgets and budgetary control 2
Com. 199—Public utility and institutional accounting---------- 2
Thesis ---------- 4

II. Banking and Finance

Com. 110—Investments ---------- 2
Com. 133—Financial history of the U. S.--- 3
Com. 137—Corporation finance---------- 3
Com. 151—Latin America: economic development and trade---------- 3
Com. 154—Risk and profit---------- 3
Com. 185—Analysis of financial reports-- 2
Com. 191—Credit system---------- 4
Econ. 103—Public expenditures---------- 2
Econ. 124—Taxation ---------- 3
Econ. 175—Business cycle theories------- 3
Thesis ---------- 4

III. Marketing

Com. 15—Principles of advertising----- 2
Com. 114—Marketing management------- 2
Com. 116—Problems in national advertising 2
Com. 136—Transportation problems ------ 3
Com. 151—Latin America: economic development and trade---------- 3
Com. 156—International trade---------- 3
Com. 170—Merchandising ---------- 2
Ag. Econ. 127—Cooperative marketing--- 3
Ag. Econ. 128—Marketing agricultural products ---------- 3
Thesis ---------- 4

IV. Public Utilities

Credits

Com. 135—Railway transportation--------2-3
Com. 136—Transportation problems------ 3
Com. 168—Highway transportation-------- 3
Com. 189—Railway rates and traffic-----2-3
Com. 195—Public utility management---- 3
Com. 266—Seminary, public utilities (open to seniors by special consent)--- 2
Thesis ---------- 4

V. Risk and Insurance

Com. 121—Property insurance---------- 2
Com. 138—Life insurance---------- 2
Com. 140—Problems in insurance-------- 4
Com. 154—Risk and profit---------- 3
Com. 110—Investments ---------- 2
Com. 133—Financial history of the U. S. 3
Math. 24—Theory of life insurance------ 3

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

VI. Statistics

Com. 132—Statistical analysis of business cycles ---------- 3
Com. 196—Advanced statistical technique ---------- 3
Com. 230—Seminary, statistical research (open to seniors by special consent)--- 2
Econ. 131—Wages and prices---------- 3
Mathematics: Not to exceed 10 credits selected from the following courses:
Math. 5a—Differential calculus-------- 3
Math. 5b—Integral calculus---------- 3
Math. 118—Theory of probabilities----- 3
Math. 137—Mathematics of statistics--- 3

VII. Commercial Teaching

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

II. Courses in Municipal Finance and Administration

1 and 2. Completion of the work outlined in paragraphs 1 and 2 under Requirements for the Bachelor's Degree, I, General Course above.

3. Completion of the following courses preferably by the close of the junior year:

(a) Commerce:

	Credits
Commerce 6—English in business	3
Commerce 8-9—Accounting (sophomore year)	7
Commerce 31—Business statistics	3
Commerce 105—Money and banking	3
Commerce 142—Public utilities	3
	19

(b) Economics:

Economics 1a—General economics (sophomore year)	4

(c) Political Science:

Political Science 7—American government and politics	3
Political Science 13—Municipal government	3

(d) Free electives in Commerce and Economics	9
	38
(e) Law—Municipal corporations (senior year)	2
(f) Mathematics 7—Theory of investment (freshman year)	4
	44

4. Completion of a major as outlined under the first paragraph of 4 above. This major shall include 12 credits selected from the following:

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

Suggested courses for other electives are:

	Credits
Commerce 110—Investments	2
Commerce 184—Auditing	3
Commerce 195—Public utility management	3
Economics 103—Public expenditures and public debts	2
Economics 146—Government and business	3
Education 171—School finance	3

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

BACHELORS' DEGREES. Students who have completed the foregoing requirements for the General Course or the Course in Municipal Finance and Administration will be granted either the Bachelor of Arts degree or the Bachelor of Philosophy degree, depending upon which course requirements have been fulfilled.

TRANSFERRED STUDENTS

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

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

THE GRADUATE YEAR

REQUIREMENTS FOR ADMISSION. Students may be admitted to the graduate year of this School who hold the baccalaureate degree from this or other colleges and universities of good standing and whose personalities, character, and undergraduate records give promise of their ability successfully to meet the requirements outlined below and the demands of the business world for trained specialists and leaders. Application for admission must be made in writing upon forms supplied by the Graduate School of the University.

UNDERGRADUATE PREREQUISITES. Graduate students who, in their undergraduate courses, have not substantially completed the major requirements described above must complete them either before entering upon the course of study outlined below or in connection with it. For such students more than two semesters of residence will be required for the completion of the course, how much more depending upon the number of credits earned during their undergraduate years toward the undergraduate major described above.

COURSES OF STUDY AND OTHER REQUIREMENTS. The work of the graduate year will center in research seminars in the fields of accounting and statistics, marketing, public utilities, and finance, subject to the following regulations:

(1) Each student must select one of the foregoing as his field of specialization.

(2) His work for the year will be directed by the professor in charge of the field selected, who will arrange with him a program which shall include: (a) at least one of the research seminars conducted in the field selected; (b) other courses of graduate grade or seminars offered in the field, or assigned readings and papers to be done under his guidance outside of formal courses, or a combination of courses, readings, and papers which, together with his work in the seminar, will occupy not less than one-third nor more than one-half of his time; and (c) courses of graduate grade offered in the other fields mentioned above or in the School of Commerce or the Department of Economics outside of these fields, or a combination of the two sufficient, together with the credits granted for the work done under the heads (a) and (b), to aggregate not less than 20 credits for the year.

(3) The quality of the student's work for the year will be tested by a thesis or seminary topic on some subject connected with his field of specialization and by an examination at the close of the year covering a program arranged at the beginning of the year with the professor in charge of the field of specialization.

MASTER'S DEGREES GRANTED. Students who successfully pass the test mentioned under (3) will receive the degree of Master of Arts (Commerce) or Master of Philosophy (Commerce), depending upon the scope of their undergraduate work.

COMMERCE STUDENT SOCIETIES, HONORS, AND AWARDS

BETA GAMMA SIGMA. Beta Gamma Sigma, the national honor society of the Schools of Commerce, has had a chapter at Wisconsin since 1913. The local chapter was organized in 1907. There are now forty-two chapters of this fraternity. Members of the senior and junior classes are eligible for election. Membership in this society is recognized as a high academic honor. Scholarship and promise of unusual ability are basic factors governing election from those ranking in the first ten per cent of their class.

DELTA SIGMA PI. The Wisconsin chapter of Delta Sigma Pi was established in the School of Commerce in 1923. It is a national professional commerce fraternity. The Wisconsin chapter of Delta Sigma Pi awards annually its scholarship key to the senior man in the School of Commerce having the highest scholarship record for the entire course. Affiliation with the fraternity is not a consideration in making the award at Wisconsin.

ALPHA KAPPA PSI. The Wisconsin chapter of Alpha Kappa Psi was established in the School of Commerce in 1923. It is a national professional commerce fraternity. The Wisconsin chapter of Alpha Kappa Psi awards annually a bronze medalion to the junior man in the School of Commerce having the highest scholarship record for a period of three years at Wisconsin. Affiliation with the fraternity is not a consideration in making the award.

BETA ALPHA PSI. The Wisconsin chapter of Beta Alpha Psi, national professional accounting fraternity, was established in the School of Commerce in 1932. Its purposes are to promote a greater interest in the profession of accountancy, and to make and encourage contacts between practitioners, faculty and students.

PHI CHI THETA. Phi Chi Theta is the national professional sorority of women who are enrolled in the School of Commerce. Established in Wisconsin

in 1925, it has done much toward promoting a professional interest in business among women. The Wisconsin chapter of Phi Chi Theta awards annually its key to the senior woman in the School of Commerce who shows a high scholastic record, participation in extra-curricular activities, and promise of success in business. Affiliation with the sorority is not a consideration in making the award at Wisconsin.

WOMEN'S COMMERCE CLUB. The Women's Commerce Club was established at Wisconsin in 1917 to develop professional interest among University women planning to enter business.

PLACEMENT BUREAU

For many years the School of Commerce has maintained a Placement Bureau. Its service includes assistance to seniors in securing positions and to graduates in securing more satisfactory positions. Although it is impossible to guarantee positions to those who graduate from the School of Commerce, many seniors and graduates have secured employment through the efforts of the Placement Bureau. Each spring many business organizations send their representatives to interview students seeking employment.

Those in charge of the Placement Bureau welcome contacts with executives of all types of business concerns who are interested in employing young men and women who have completed their training in the School of Commerce.

SCHOOL OF JOURNALISM

GRANT M. HYDE, DIRECTOR, PROFESSOR OF JOURNALISM

PURPOSE AND PLAN. The studies included in the School of Journalism are of two 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 intended to give the necessary instruction in the methods of journalism and advertising. The course of study has been arranged in the belief that three-fourths of the time should be devoted to a study of the subjects in the first group, such as history, political science, economics, sociology, philosophy, psychology, language, and literature, which are fundamental to journalistic work.

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

Special lectures on various phases of journalistic work are given by newspaper men in active service. Additional information is available in a special bulletin of the School of Journalism, which may be had on application to the Director of the School.

ADVERTISING. Students may obtain special training in preparation for advertising positions by combining courses in journalism with those in advertising. The normal arrangement of these courses is indicated in the Journalism-Advertising Group. Students who desire to enter the Journalism-Advertising Group must earn grade-points equal to credits in Economics 1a and 1b, and may not usually continue if they fail to earn a B in Commerce 15.

TECHNICAL AND TRADE JOURNALISM. Although the curriculum in this school has been arranged primarily for students preparing for newspaper and magazine work, provision has also been made for those interested in technical and trade journalism. The courses in newspaper and magazine work may be elected by students in the professional schools and courses. Subject to the provisions governing the election of studies in other colleges (see page 63), students in the School of Journalism may elect courses in the College of Engineering, the Law School, the School of Education, and the College of Agriculture including Home Economics. By combining studies in commerce, agriculture, engineering, and other technical subjects with those outlined in the School of Journalism, students can obtain the necessary preparation for practically all lines of technical and trade journalism. Two of the journalism courses, Journalism 105B and 107, are especially designed for students interested in this field.

LABORATORY EQUIPMENT. A newspaper office with typewriters, copy desk, files, and reference books is maintained as a laboratory for the students of journalism. The full leased wire service of one of the national press associations is received by printer telegraph to afford practice in editing telegraph copy. In the specially equipped typographical laboratory, students are given practical

training in the principles of typography in connection with the courses in editing, advertising, and newspaper business management. A reading room adjoining the journalism laboratory is provided with files of the leading newspapers of the country, as well as of important American and English journalistic periodicals. A photographic laboratory and a special departmental library are available in the quarters of the school.

PRACTICAL EXPERIENCE. Students preparing for journalism are given practical training on the two Madison daily newspapers, the editors of which cooperate with the journalism instructors for this purpose. The editors of a number of Wisconsin weekly papers cooperate in giving students in the course in the Community Newspaper practical experience for a week during the spring recess. Places on the editorial and business staffs of student publications are awarded for the most part on the basis of literary and executive ability, and are open to all students. The *Daily Cardinal,* published as a morning newspaper in a printing plant of its own, is edited by a staff organized from the students interested in journalism, who thus get practice in all the details of newspaper making. The *Octopus,* a humorous periodical, and the *Badger,* the university annual, edited and published by the members of the senior class, give opportunity for a variety of experience in journalism. *The Wisconsin Engineer,* a monthly 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. In all basic courses (Journ. 2, 3, 105) individual instruction is provided through weekly or bi-weekly group discussions of students around a table.

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

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

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

Students must obtain nine grade-points in English 1a and 1b in order to be admitted to Journalism 2. Only those students who obtain nine grade-points in Journalism 2 will be admitted to the School of Journalism, or will be permitted to elect advanced courses in journalism.

Students who have completed two or more years in another institution (college, university, or normal school), must be eligible for junior standing in the B.A. General Course of the College of Letters and Science, in order to be admitted to the School of Journalism. If they desire to complete the requirements for graduation from the School of Journalism in two years, they should present most of the subjects for admission to the School that students do who have attended the University for the first two years of their college work, excepting that credits in journalism are not necessary for admission. Students from other institutions should send a certified copy of their preparatory school and academic records to the chairman of the Committee on Advanced Standing, Bascom Hall, before coming to the University.

Requirements for Graduation. For graduation from the School of Journalism, 124 credits are required, in which are included those earned in the first two years of college work and those obtained in the junior and senior years in the School of Journalism. Of this total 30 credits must be taken in required and elective courses in journalism, inclusive of Principles of advertising (Commerce 15), but not of the freshman Survey of journalism (Journ. 1). Advertising campaigns (Commerce 116), Marketing methods (Commerce 13), and English in business (Commerce 6) may be included in the required 30 credits in journalism only by students in the Journalism-Advertising group. In addition, Economics 1a and 1b, Pol. Science 1 or 7, Psychology 1 and 15 credits in advanced social sciences are required as noted on page 93.

The student's point-credit ratio (see page 52) in courses in journalism and advertising must not be less than 1.5, and in other courses not less than 1.0. Those students in the School of Journalism who fail to maintain the grade-point requirements will be advised to withdraw from the School.

Students are required to have either (1) 32 credits in one or more foreign languages for graduation from the School of Journalism, part of which may have been taken in preparatory schools (each year of foreign language work satisfactorily completed in a high school or academy is counted as four credits up to a maximum of 24 toward the required 32 credits) or (2) they must demonstrate by examination either (a) proficiency in one foreign language or (b) a reading knowledge in two foreign languages. (See page 56) For journalism students the languages which may be offered include Latin, Greek, French, Italian, Spanish, Portuguese, and German; other foreign languages may be offered only by special permission of the Director.

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

The degree of Bachelor of Arts (Journalism) is granted to students who complete satisfactorily the requirements for graduation from the School of Journalism.

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

I. REQUIRED COURSES IN JOURNALISM AND ADVERTISING

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

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

II. REQUIRED COURSES IN THE SOCIAL SCIENCES

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

1. History

Credits

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

111—History of the West, 1763-1893 3-4
117—American constitutional history, 1600-1938 2-3
120—American foreign relations, 1783-1938 3
122—American economic life 2-3
124—Recent history of the United States, 1873-1938 3-4
139—Europe since 1815 3
143—The British Empire since 1815 3
147—Modern Britain, 1760-1938 3
178—Recent German history 2-3

2. Political Science

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

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

3. Economics and Commerce

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

Com. 43—Business ethics 2

	Credits
Econ. 119—Evolution of industry	3
Econ. 122—Labor problems	3
Econ. 124—Taxation	3
Econ. 136—Transportation problems	3
Econ. 142—Public utilities	3
Econ. 144—Capitalism and socialism	3
Econ. 145—American labor history	3
Econ. 146—Government and business	3

4. Sociology

At least 3 credits, preferably chosen from the following:

1, 2—Introductory sociology	6
46—Introduction to anthropology	3
132—Introductry social statistics	3
138—Introduction to social pathology	3
139—Social psychology	3
140—Principles of sociology	3
144—Contemporary social movements	3
161—Criminology and penology	3
197—Personality and social adjustment	3

5. Psychology and Philosophy

At least 3 credits, preferably chosen from the following:

Psych. 50—Applied psychology	2
Psych. 106—Abnormal psychology	3
Psych. 108—Human emotions and motivation	3
Psych. 144—Psychology of learning	3
Phil. 11—Elementary logic	3
Phil. 21—Introduction to philosophy	3
Phil. 25—Philosophy and the human enterprise	3
Phil. 41—Introductory ethics	3

RECOMMENDED PRE-JOURNALISM CURRICULUM

FRESHMAN YEAR

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

SOPHOMORE YEAR

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

SCHOOL OF JOURNALISM CURRICULUM

LEADING TO THE DEGREE OF BACHELOR OF ARTS (JOURNALISM)

DAILY NEWSPAPER GROUP

JUNIOR YEAR

Journ. 3—Editing	3	Journ. 3—Editing	3
Journ. 105—Writing of special articles	2	Journ. 106—Critical writing	2
Commerce 15—Advertising principles	2	Journ. 123—Women's fields	2
Social science options	3-6	Social science options	6-8
Free electives	6-3	Free electives	5-3
	16		16

SENIOR YEAR

First Semester	Credits	Second Semester	Credits
Journ. 104—Editorial writing	2	Journ. 111—Influence of the newspaper	3
Journ. 109—Law of the press	1	Journ. 112—Reporting of law courts	2
Journ. 101—Journalistic style	2	Journ. 120—Interpreting foreign news	2
Journ. 110—History of journalism	3	Thesis or substitute	2
Thesis or substitute	2	Social science options	2-6
Social science options	3-6	Free electives	7-3
Free electives	5-2		
	16		16

COMMUNITY NEWSPAPER GROUP

JUNIOR YEAR

Journ. 3—Editing	3	Journ. 3—Editing	3
Journ. 7—Community newspaper	2	Journ. 108—Newspaper business management	2
Journ. 105—Writing special articles	2	Commerce 13—Marketing methods	3
Commerce 15—Advertising principles	2	Social science options	6-8
Social science option	3	Free electives	4-2
Econ. 25—Rural life	(3)		
Free electives	3		
	16		16

SENIOR YEAR

Journ. 109—Law of the press	1	Journ. 111—Influence of the newspaper	3
Journ. 110—History of journalism	3	Journ. 112—Reporting of public affairs	2
Journ. 104—Editorial writing	3	Thesis or substitute	2
Thesis or substitute	2	Social science options, or	6-8
Social science options	3-6	Econ. 127 or 192	(2)
Free electives	7-3	Free electives	3-1
	16		16

JOURNALISM-ADVERTISING GROUP

JUNIOR YEAR

Journ. 3—Editing	3	Journ. 4—Advertising typography	1
Journ. 105—Writing of special articles	(2)	Journ. 107—Technical and trade journalism	2
Commerce 13—Marketing methods	3	Journ. 123—Women's fields	2
Commerce 15—Advertising principles	2	Social science options	3-8
Social science option	3	Free electives	10-5
Free electives	5		
	16		16

SENIOR YEAR

Journ. 109—Law of the press	1	Journ. 111—Influence of the newspaper	3
Journ. 110—History of journalism	3	Thesis or substitute	2
Commerce 116—Problems in national advertising	2	Commerce 170	2
Social science options	3-6	Social science options	6-8
Thesis or substitute	2	Free electives	5-2
Free electives	5-2		
	16		16

JOURNALISM-MAGAZINE GROUP

JUNIOR YEAR

First Semester	Credits	Second Semester	Credits
Journ. 3—Editing	3	Journ. 3—Editing	3
Journ. 105—Writing of special articles	2	Journ. 107—Technical and trade journalism	2
Commerce 15—Advertising principles	2	Journ. 105b—Magazine feature articles	2
Social science options	3-6	Journ. 123—(required of women)	(2)
Free electives	6-3	Social science options	5-8
		Free electives	4-3
	16		16

SENIOR YEAR

Journ. 109—Law of the press	1	Journ. 10—News photography	1
Journ. 110—History of journalism	3	Journ. 106—Critical writing	2
Journ. 101—Journalistic style	2	Journ. 111—Influence of the newspaper	3
Thesis or substitute	2	Thesis or substitute	2
Social science options	3-6	Social science options	4-6
Free electives	7-4	Free electives	7-5
	16		16

TEACHERS' GROUP

Candidates for the University Teachers' Certificate are required to register in the School of Education as well as in the School of Journalism at the beginning of the junior year.

JUNIOR YEAR

Journ. 3—Editing	3	Journ. 3—Editing	3
Journ. 105—Writing of special articles	2	Journ. 107—Technical and trade journalism	2
Commerce 15—Advertising principles	2	Elective in education	3-2
Social science options	3	Social science options	6-9
Education electives	6	Free electives	4-2
	16		16

SENIOR YEAR

*Educ. Methods 191—Teaching of journalism	(2)	Journ. 106—Critical writing	2
Journ. 101—Journalistic style	2	Journ. 111—Influence of the newspaper	3
Journ. 109—Law of the press	1	Thesis or substitute	2
Journ. 110—History of journalism	3	Journ. 104—Editorial writing	2
Thesis or substitute	2	Educ. Methods 76—Teaching of English	3
Social science options	4	Educ. 75—Psychology and practice of teaching	5
Free electives	4	Social science option	2
	16		16

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

LIBRARY SCHOOL

CLARENCE BROWN LESTER, M.A., *Lecturer in Library Science, Director*
MARY KATHERINE REELY, B.A., *Assistant Professor of Bibliography*
MRS. WINIFRED LEMON DAVIS, M.A., *Assistant Professor of Library Science*
ALMA MATILDA RUNGE, B.A., *Assistant Professor of Library Science*
BLANCHE A. SMITH, B.A., *Assistant Professor of Library Science*

The Library School is a professional school offering a one-year course for both men and women. This training, *given in residence only,* may be taken either as an independent course by all who meet the entrance requirements, or as a joint course by seniors in the College of Letters and Science who qualify for entrance. No part of this course is offered in the Summer Session. In cooperation with the School of Education, a special course for teachers is offered; for a detailed statement of this course, see School of Education.

For a complete catalog giving full description of the course of study, address the Principal of the Library School, University of Wisconsin.

REQUIREMENTS FOR ADMISSION

1. Each candidate must fill out an application blank, a copy of which may be obtained by addressing the Principal, to whom it should be promptly returned.

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

3. Graduates of accredited colleges whose undergraduate records are acceptable, are admitted upon the basis of such records, but must meet the other requirements for admission as set forth below. The applications of college graduates should, if possible, be filed not later than the first Friday in June of every year, and as much earlier as possible to allow time to arrange for the prerequisites, and to be sure of a place in the class, as the number of students that can be accepted is limited to 42.

4. Students electing the joint course with the College of Letters and Science are admitted at the end of their junior year without written examination if they have upper-group status. The joint course is more fully discussed below.

5. All applicants not holding a degree from an approved college are required to take the entrance examinations, which are held on the first Friday in June of every year. Candidates for the examination must have completed sufficient work to classify them as juniors in an accredited college, while four years of college work or its equivalent are most desirable. Applicants taking the entrance examinations should understand that the examinations are designed to test their education, reading, and general information. Sight translation from one foreign language is also included, the candidate having the choice of French or German.

6. A personal interview with prospective candidates is desirable whenever possible. Besides the background of education, so much depends upon the spirit in which library work is undertaken and the personal fitness for it, that much attention is given to the selection of students. Candidates are tested not only by college records or entrance examinations, but also by correspondence, by the testimony of their references, and by the personal interview.

The class entering in September of every year is made up not later than the first of July and includes the college graduates whose applications have already been accepted and the candidates who have passed the entrance examinations. *Students are admitted only at the beginning of the first semester.*

If there are more candidates than can be accommodated, entrance is made competitive and college graduates with high scholastic standing and those who pass the examination with the highest average are accepted first. The others are placed on a waiting list, from which any vacancy created by withdrawal is filled.

Special Requirements. Accepted candidates must meet several special requirements *before school opens in September.* All who have not had experience in library work must spend at least one month in actual work in a designated library before joining the class. The library and the conditions under which the work is to be performed must be satisfactory to the Principal, and arrangements for such work will be made by her.

Since the typewriter is used in the preparation of lessons, the candidate must be able to type before entering. Detailed information concerning this requirement is sent with the application blank. It is also required that the standard vertical or library handwriting be mastered. Accompanying the application blank is a required list of books to be read in preparation for the first appointment of the school year in book selection.

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

Undergraduates in college who are planning to enter the Library School on the completion of their college work are advised to select courses from the groups below. Economics, history, English, and science are especially suitable for majors. Recently we have had requests for graduates who have majored in each of these fields, but were unable to fill the positions requiring a background of science and economics because there were no majors in these subjects.

A sufficient introduction to the learning represented by the groups below is essential for intelligent reading in these subjects. Wide reading interests and the ability to assimilate information quickly and easily should be cultivated.

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

English literature—especially survey courses in English and American literature and others in literary appreciation and criticism.

Classical languages—at least two years of high-school Latin accompanied by ancient history.

History—at least two courses, including United States history.

Social sciences—economics, political science, and sociology.

Psychology, philosophy, and education.

Science—one year of a laboratory science.

Speech.

COURSE OF STUDY

The course of instruction extends throughout the university year, September to June. The work covers the following subjects, which are required:

First Semester	Credits	Second Semester	Credits
Book selection	2	Book selection	2
Reference	2	Reference	2
Trade bibliography and bookbuying	1	Public documents	1
Cataloging	5	Children's work and school libraries	1
Classification	3	Subject bibliography	3
Library administration	2	Library administration and profession	3
		Field practice	3
	15		15

The field practice is one of the distinctive features of the School. During February and March of every year the academic schedule is suspended and the students are assigned to actual work in the libraries of the State, under the supervision of the librarians and the members of the faculty of the School. This work seeks to cover not only the various phases of library technique and library administration, but also the larger service to the public through extension methods, library publicity, book selection, cooperation of libraries with schools and story telling.

EXPENSES*

(1) The tuition for residents of Wisconsin is $50 for the course, $25 being payable at the opening of each semester. For non-residents, the tuition is $100 for the course, $50 to be paid at the opening of each semester. An infirmary fee of $4.50 per semester is required of each student. The tuition and fee are *payable at the Library School.* (2) Joint-course students pay the regular university tuition and fees plus the Library School tuition with such adjustments as will avoid double tuition. (3) The cost of textbooks and supplies for each student will average $40 for the year. (4) A graduation fee of $10 is charged.

Upon notification that they have been accepted, applicants are required to pay a registration fee of $5, which will be applied on the tuition of the first semester. In case of withdrawal of the applicant before the opening of School, the registration fee will be retained to cover expenses of correspondence, etc.

The School pays the railroad fare of students to and from the required field practice.

JOINT COURSE WITH THE COLLEGE OF LETTERS AND SCIENCE

A joint course has been arranged between the Library School and the College of Letters and Science for those who are not able to afford the time for four years of college work followed by a year of technical training. The joint course is made possible by a rule of the College of Letters and Science which provides that candidates for the Bachelor of Arts degree are allowed under specified circumstances to elect studies in other of the university colleges and schools to an amount not exceeding 20 credits.

A regular joint-course student, in order to receive a B.A. degree and the

*It is likely that the Library School will be transferred to the University before the opening of the 1938-39 school-year. As a result of this transfer there may be some change in fees.

Library School diploma, must earn 130 credits, to be distributed usually as follows: 96 credits by the end of the junior year, including all the required work (excepting the thesis) in some one of the regularly authorized academic majors or fields of concentration in the College of Letters and Science; 30 credits for the studies of the Library School during the senior year; 4 credits for thesis during the senior year or, if a thesis be not undertaken, 4 credits in a summer session. An extra summer session is advised rather than a thesis carried in connection with the year's work in library science. Except for the thesis, joint-course students must devote the entire time of the senior year to the work of the Library School. This means that they should start their major in the sophomore year.

By properly arranging his studies and by carrying 16 credits per semester for the first three years, a student can ordinarily earn both the Bachelor of Arts degree and the Library School diploma at the end of four years. If the student does not carry 16 credits per semester for the full three years, the deficiency may be made up by work in the summer session.

If students elect the work of the Library School before they have attained senior rank, they are not exempt from the entrance examinations for the School. Furthermore, it should be understood that the work of the School is accepted for only ten college credits if completed before the beginning of the junior year, and that 20 college credits are allowed for it only if it is completed after the beginning of the junior year (the 20-credit rule quoted above requires junior standing before its privileges may be enjoyed).

Students in other institutions wishing to enter the joint course with advanced standing must bear in mind that the College of Letters and Science requires 40 credits in residence study; attendance at the Library School may not be counted toward fulfilling this requirement. Transfers from other colleges with intent to take the joint course are best accomplished at the beginning of the sophomore year. Arrangements for entering on advanced standing should be made through the Chairman of the Committee on Advanced Standing, University of Wisconsin, and the Principal of the Library School.

SCHOOL OF MUSIC

CARL E. BRICKEN, DIRECTOR, PROFESSOR OF MUSIC

The School of Music offers a four-year course leading to the degree of Bachelor of Music; this course provides training in the fields of applied music, history and theory of music, and public school music. The degrees of Master of Arts and Master of Music are granted upon the completion of certain requirements. For information regarding the nature of the required work, inquiry should be made to the Director of the School of Music.

Individual and class 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, but they must be able to satisfy the usual entrance requirements as stated below.

For the purpose of election by non-music majors the courses in music fall under the Twenty Credits Rule, as if they were elections outside the college (see section 16, page 63). Students enrolled in other schools and colleges of the University are allowed to take courses in the School of Music, subject to the approval of their adviser and Dean (given in writing) and the Director of the School of Music, under the following special regulations. Credits, not to exceed twenty, may be elected by sophomores, juniors, and seniors in theoretical music courses. A maximum of ten credits in applied music may be taken by juniors and seniors. In any case, the maximum number of credits in theoretical and applied music may not exceed twenty. Any student may take courses in applied music without credit provided he satisfies the entrance requirements. In the case of organ, piano, and violin, students will be expected to satisfy the entrance requirements for majors in these subjects, whether or not the subjects are taken for credit.

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

The regular university calendar applies to the School of Music, but students in applied music may enter at any time. All university holidays are observed without make-up of lessons in applied music.

EQUIPMENT. The School of Music is provided with a concert auditorium, lecture hall, library, teaching studios for applied music, practice rooms, a four-manual organ, a Hammond electric organ, a two-manual organ, three two-manual reed organs, pianos, orchestral and band instruments, and an equipment of mechanical instruments. Four audition rooms are equipped so that students are enabled to acquaint themselves with an extensive library of phonograph records. A Carnegie music set is available for use by the student body. The School occupies two adjacent buildings on the main campus, Music Hall and Music Annex.

REQUIREMENTS FOR ADMISSION

The general requirements, other than those for admission to the University, include (1) sufficient natural music ability, as determined by a series of tests, (2) the ability to sing at sight songs of the difficulty of the average hymn tune, and (3) knowledge of such fundamental facts of musical theory

as key signatures, major and minor scales, note values, etc. A sub-freshman course, without credit, is offered for those unable to meet these requirements.

SPECIAL REQUIREMENTS FOR MAJORS IN APPLIED MUSIC

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

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

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

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

FEES AND TUITION

Regularly enrolled students in the School of Music (i.e., those working toward a degree) and special students taking theory courses are required to pay the regular university fees. Persons taking courses in applied music, either regularly enrolled students or special students in applied music only, are required to pay the tuition fees charged for such instruction, as noted below. Special students taking only private instruction in applied music are not required to pay the general fee or the non-resident tuition fee.

Students enrolling at any time previous to the fifteenth day of any semester will be charged the full applied music and practice room fees for the semester. Students enrolling thereafter may receive some reduction at the discretion of the Director. All fees must be paid at the beginning of each semester; until this has been done, the student will not be entitled to receive instruction.

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

Tuition in applied music, per semester for undergraduate music majors:

Professional fee (1 private and 1 class lesson)	$30.00

Tuition in applied music, per semester, for all other music students and music majors desiring additional lessons:

One private lesson a week	$25.00
Two private lessons a week	45.00
One class lesson a week	15.00

Rent of practice rooms, per semester:

Without equipment, one hour daily	2.00
Organ, one hour daily	9.00*
Piano, one hour daily	4.00
Rent of band and orchestra instruments	2.50

Laboratory fees, per semester:

Music 31	.50
Music 89	5.00
Music 90, 92, each	2.50
Music 95, 131, 165, 231, each	1.00

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

ORGANIZATIONS

THE UNIVERSITY ORCHESTRA has a membership of about eighty players. The finest examples of symphonic music are studied and performed. Two full rehearsals and one sectional rehearsal are held each week. Membership is open to the entire University by tryouts. Students who qualify may receive one credit listed as Music 76.

THE LIGHT OPERA ORCHESTRA is limited to twenty-four men students. Overtures, selections, and light opera music will be studied and performed. Membership is decided by tryouts.

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

THE UNIVERSITY SINGERS, an organization of fifty voices, studies and performs masterpieces of choral literature. Membership is on a competitive basis and is open to any student in the University, including graduate students. Under Music 77, 0 or 1 cr. may be elected.

THE MEN'S CHORUS, an organization of approximately forty voices, studies and performs the best male chorus literature. Membership is on a competitive basis and is open to the entire student body, including graduate students. It is listed as Music 77 and may be elected for 0 or 1 credit.

THE WOMEN'S CHORUS, an organization of forty-eight voices, studies and performs the finest music available. Membership is open to the entire student body. Auditions are held at the beginning of each semester. It is listed as Music 77 and may be elected for 0 or 1 credit.

THE UNIVERSITY BANDS consist of two hundred men divided into a Concert Band, a First Regimental Band, and a Second Regimental Band. The Concert Band devotes its efforts to the study and performance of the higher forms of music. The Regimental Bands serve as a training school for the Concert Band and serve the Military Department at official functions. The University Bands also play for university convocations and cooperate with the Athletic Department at games. Each organization rehearses three times

weekly. Underclassmen may elect Band to fulfill the physical activity requirement. Upperclassmen who are members of the Concert Band and selected members of the Regimental Bands who remain for duty at Commencement receive a stipend of thirty dollars. Membership in Band is determined by tryout. Members of the University Bands may receive one credit beginning with the sophomore year by registering in Music 80.

A WOMEN'S BAND has been organized to give an opportunity for all those university women who have had experience with a band instrument. This group rehearses three times each week.

CONCERTS AND RECITALS

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

Student recitals, free to all students of the University and open to all others by invitation, are held at frequent intervals throughout the school year.

Public performances being part of the course of study in a practical subject, all students are required to participate in a program when they are, in the instructor's opinion, sufficiently prepared.

A student is expected not to take part in any public performance without the consent of his instructor.

COURSE IN MUSIC

LEADING TO THE DEGREE OF BACHELOR OF MUSIC

A total of 120 credits and 120 grade-points is required for the degree, including a minimum of 54 credits in the College of Letters and Science and 46 to 66 credits in the School of Music, this number to be decided by consultation with the Director. The foreign language requirement may be satisfied either by (1) the rules governing the language requirements of the B.A. degree; (2) an intermediate examination in French, German, or Italian; or by (3) sixteen credits in French, German, or Italian, the last four of which must be earned in this University with a grade of at least C. Students will not be enrolled as juniors unless they have earned a point-credit ratio of 1.5 in music subjects during the sophomore year. The candidate may choose his major in one of the following fields, in which he may obtain a maximum of 10 credits in the junior and senior years: applied music, history and theory of music, public school music.

TEACHERS' CERTIFICATE. Candidates for the degree of Bachelor of Music who wish to obtain the University Teachers' Certificate are required to register in the School of Education at the beginning of the junior year and to earn a total of 124 credits and 124 grade-points, with a minimum of 55 credits in Letters and Science. The following courses are specifically required:

	Credits
Educ. 31—Principles of education	3
Educ. 75—Psychology and practice of teaching	5
Departmental teachers' courses, Music 36 and 37, 51, 53, or 92	5
Elective in the Department of Education	5
	18

RECOMMENDED SEQUENCE

The following course of study is a suggested outline which is subject to alteration with the consent of the adviser, to meet individual cases:

FRESHMAN YEAR

First Semester	Credits	Second Semester	Credits
Music 81, 82, 83, or 84—Applied music	2	Music 81, 82, 83, or 84—Applied music	2
Music 1—Harmony	3	Music 1—Harmony	3
Music 75—Solfeggio	1	Music 75—Solfeggio	1
Foreign language	4	Foreign language	4
Engl. 1a—Freshman composition	3	Engl. 1b—Freshman composition	3
History	3	History	3
Physical activity requirement	0-(1)	Physical activity requirement	0-(1)
	16		16

SOPHOMORE YEAR

Music 81, 82, 83, or 84—Applied music	2	Music 81, 82, 83, or 84—Applied music	2
Music 11—Second-year harmony	3	Music 11—Second-year harmony	3
Music 21—Counterpoint	2	Music 21—Counterpoint	2
Music 89—Instrumental class instruction	2	Music 65—Appreciation of music	1
Foreign language	3-4	Music 90—Instrumentation	2
English or history	3-2	Foreign language	3-4
Physical activity requirement	0-(1)	English or history	3-2
		Physical activity requirement	0-(1)
	15		16

MAJOR IN APPLIED MUSIC

JUNIOR YEAR

Music 81, 82, 83, or 84—Applied music	2	Music 81, 82, 83, or 84—Applied music	2
Music 31—History of music	2	Music 41, 42 or 43—Ensemble	1
Secondary applied music	1	Music 31—History of music	2
Letters and Science	6	Secondary applied music	1
Free electives	5	Music 5—Form and analysis	2
		Letters and Science	5
		Free electives	3
	16		16

SENIOR YEAR

Music 81, 82, 83, or 84—Applied music	2	Music 81, 82, 83, or 84—Applied music	2
Music 41, 42 or 43—Ensemble	1	Music 41, 42 or 43—Ensemble	1
Music 36—Pedagogy	2	Music 37—Applied pedagogy	2
Music 95—Elementary survey	2	Music 95—Elementary survey	2
Music 102—Advanced harmony	2	Music 121—Advanced counterpoint	2
Letters and Science	5	Letters and Science	5
Free electives	2	Free electives	2
	16		16

N.B.: Those expecting to register in the Graduate School should choose some electives in academic subjects.

MAJOR IN HISTORY AND THEORY OF MUSIC

JUNIOR YEAR

First Semester	Credits	Second Semester	Credits
Music 31—History of music	2	Music 31—History of music	2
Music 102—Advanced harmony	2	Music 122—Double counterpoint, canon and fugue	2
Music 121—Advanced counterpoint	2	Music 81, 82, 83 or 84—Applied music	2
Music 81, 82, 83 or 84—Applied music	2	Music 5—Form	2
Education and Letters and Science	7	Education and Letters and Science	8
	15		16

SENIOR YEAR

Music 95—Elementary survey	2	Music 95—Elementary survey	2
Music 162—Composition	2	Music 81, 82, 83 or 84—Applied music	2
Music 81, 82, 83 or 84—Applied music	2	Music 131—Advanced history of music	3
Education and Letters and Science	6	Education and Letters and Science	5
Free electives	4	Free electives	4
	16		16

MAJOR IN SCHOOL MUSIC—VOCAL

JUNIOR YEAR

Music 31—History of music	2	Music 31—History of music	2
Music 51—Theory and practice of grade school music	2	Music 51—Theory and practice of grade school music	2
Music 102—Adv. harmony and elem. composition	2	Music 121—Advanced counterpoint	2
Music 81, 82, 83 or 84—Applied music	2	Music 5—Form	2
Education 123	3	Music 81, 82, 83 or 84—Applied music	2
Letters and Science	5	Education 75	5
	16		15

SENIOR YEAR

Music 39—Theory and practice of supervision	3	Music 39—Theory and practice of supervision	3
Music 53—Principles of secondary school music	2	Music 95—Elementary survey	2
Music 81, 82, 83 or 84—Applied music	2	Music 66—Conducting	2
Music 95—Elementary survey	2	Music 81, 82, 83 or 84—Applied music	2
Education 31	3	Letters and Science	2
Letters and Science	3	Free electives	5
Free electives	1		
	16		16

MAJOR IN SCHOOL MUSIC—INSTRUMENTAL

JUNIOR YEAR

First Semester	Credits	Second Semester	Credits
Music 81, 82, 83 or 84—Applied music	2	Music 81, 82, 83 or 84—Applied music	2
Music 31—History of music	2	Music 31—History of music	2
Music 53—Principles of secondary school music	2	Education 75	5
Music 91—Instrumental methods	2	Music 76—Orchestra or Music 80—Band	1
Music 102—Adv. harmony or Music 121—Adv. counterpoint	2	Music 102—Adv. harmony or Music 121—Adv. counterpoint	2
Music 76—Orchestra or Music 80—Band	1	Music 5—Form and analysis	2
Education 123	3	Music 66—Conducting	2
Electives	2		
	16		16

SENIOR YEAR

Music 81, 82, 83 or 84—Applied music	2	Music 81, 82, 83 or 84—Applied music	2
Music 92—Inst. music administration	3	Music 92—Inst. music administration	3
Music 95—Elementary survey	2	Music 95—Elementary survey	2
Music 76—Orchestra or Music 80—Band	1	Music 76—Orchestra or Music 80—Band	1
Education 31	3	Electives (Letters and Science)	8
Electives	5		
	16		16

DEPARTMENTS OF INSTRUCTION

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

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

In cases where there are duplicate listings of courses from other departments, schools, or colleges, usually the names of the instructors are also duplicated.

AGRICULTURAL BACTERIOLOGY

EDWIN GEORGE HASTINGS, M.S., *Professor of Agricultural Bacteriology, Chairman*
IRA LAWRENCE BALDWIN, Ph.D., *Professor of Agricultural Bacteriology*
WILLIAM C. FRAZIER, Ph.D., *Professor of Agricultural Bacteriology*
EDWIN BROUN FRED, Ph.D., *Professor of Agricultural Bacteriology*
WILLIAM BOWEN SARLES, Ph.D., *Associate Professor of Agricultural Bacteriology*
ELIZABETH MCCOY, Ph.D., *Assistant Professor of Agricultural Bacteriology*
PERRY WILLIAM WILSON, Ph.D., *Assistant Professor of Agricultural Bacteriology*
MILDRED A. ENGELBRECHT, Ph.D., *Instructor in Agricultural Bacteriology*

The following courses in Agricultural Bacteriology may be elected by Letters and Science students without special permission of their dean.

Students may, if they desire, use these courses in absolving the general requirements of the Ph.B. degree. Moreover, it is possible for properly qualified Letters and Science students, with the consent of the dean of their college, to select a major in Agricultural Bacteriology.

1. GENERAL SURVEY OF BACTERIOLOGY. I; 4 cr. The relation of microorganisms to soil fertility, to animal diseases, and to foods. Prerequisite: Chemistry 1a. Required of all agricultural students. Lab. fee $4.50. Mr. Baldwin, Mr. Sarles.

126. PHYSIOLOGY OF BACTERIA. II; 3 cr. The chemistry and physics of bacterial processes. Prerequisite: Agr. Bact. 1, 2, or 4, or Medical Bact. 102. Lab. fee $4.50. Mr. Baldwin, Mr. Sarles.

130. DETERMINATIVE BACTERIOLOGY. Yr; 2-3 cr. Training in the common methods of the bacteriological laboratory. Prerequisite: Agr. Bact. 1, 2, or 4, or Medical Bact. 102. Lab. fee $2.25 per lab. cr. Miss McCoy.

ART EDUCATION

WILLIAM HARRISON VARNUM, B.P., *Professor of Art Education, Chairman*
DELLA FORD WILSON, M.A., *Associate Professor of Art Education*
ROLAND STEWART STEBBINS, *Associate Professor of Art Education*
HELEN WANN ANNEN, B.A., B.F.A., M.S., *Assistant Professor of Art Education*
JOHN OWEN VAN KOERT, B.E., M.A., *Instructor in Art Education*
JAMES SCALES WATROUS, B.S., M.A., *Instructor in Art Education*

Students registered in the College of Letters and Science who desire an appreciative or interpretative knowledge of art by studio participation may elect for credit and without special permission of the dean of that college, the following courses.

With the exception of waiving the requirement regarding special permission, elections are subject to the provisions of Section 16, page 63. See Drawing, bulletin of the College of Engineering, for courses in mechanical drawing and lettering.

50. FREEHAND DRAWING AND PERSPECTIVE. I; 3 cr. Introduction to pictorial expression. Open to freshmen. Lab. fee $1.25. 3 sections—8-10 MWF, 8-10 TTS, 1:30-3:30 MWF. Mr. Stebbins, Mr. Van Koert, Mr. Watrous.

51. FREEHAND DRAWING: LIGHT AND SHADE. II; 3 cr. Prerequisite: Art Education 50. Lab. fee $2.75. 3 sections—8-10 MWF; 8-10 TTS, 1:30-3:30 MWF. Mr. Stebbins, Mr. Van Koert, Mr. Watrous.

52. ELEMENTARY WATERCOLOR RENDERING. Yr; 2 cr. Prerequisites: Art Education 50 and 51. Lab. fee $1.75. 8-10 TT. Mrs. Annen.

54. ELEMENTARY MODELING. Yr; 1 or 2 credits. Introduction to plastic expression. Prerequisite: Sophomore standing. Lab. fee per semester: 1 cr., $3.00; 2 cr., $6.00. 1:30-3:30 TT. Miss Wilson.

55. ADVANCED DRAWING AND ANATOMY. Yr; 2 cr. Prerequisite: Art Educ. 51. Lab. fee $3.25 per semester. 10-12 TT. Mr. Watrous.

56. ELEMENTARY OIL PAINTING. Yr; 3 cr. Prerequisites: Art Education 50 and 51. Lab. fee $2.00 per semester. 8-10 MWF. Mr. Stebbins.

62. ELEMENTARY CREATIVE DESIGN. Yr; 3 cr. Prerequisite: Art Education 50. Lab. fee $1.00 per semester. 2 sections—10-12 MWF, 1:30-3:30 MWF. Mrs. Annen.

70. ART METAL. Yr; 3 cr. Copper, silver, gold, pewter. Prerequisite: Art Education 62. Lab. fee $5.00 per semester. 8-10 TTS. Mr. Van Koert.

71. ELEMENTARY POTTERY. Yr; 2 cr. Prerequisite: Art Educ. 62. Lab. fee $6.00 per semester. 10-12 MWF. Miss Wilson.

120. PICTORIAL COMPOSITION. Yr; 2 cr. Prerequisite: Art Educ. 62. 9 MW. Mrs. Annen, Mr. Varnum.

140. STAGE DESIGN. Yr; 2 cr. First semester: Principles of design in relation to scenic designing. Individual and group presentations on model stage. 10 TT. Mr. Varnum. Second semester: Application of these principles; scene construction and lighting in Bascom Theatre. Prerequisite: Art Education 62. Also open to students registered or with credit in Speech 19, or graduate standing in Speech. 3:30 TT. Mr. Buerki, Mr. Lane.

160. Block Printing and Etching. II; 2 cr. Prerequisites: Art Educ. 62 and junior standing. Lab. fee $4.50. 2:30-4:30 TT. Mr. Varnum.

168. Advanced Modeling. Yr; *cr. Prerequisites: Art Educ. 54 and junior standing. Lab. fee $3.00 per cr. Miss Wilson.

ART HISTORY AND CRITICISM

Oskar Frank Leonard Hagen, Ph.D., F.R.S.A., *Professor of History and Criticism of Art, Chairman*
Wolfgang Stechow, Ph.D., *Associate Professor of History and Criticism of Art*
Laurence Schmeckebier, Ph.D., *Assistant Professor of History and Criticism of Art*
John Fabian Kienitz, Ph.D., *Instructor in History and Criticism of Art*

The department offers to the general student semester courses providing broad surveys of the history of art based upon aesthetic analysis, i.e., appreciation and interpretation. Students unfamiliar with the history of art should normally not elect an advanced course before they have taken an elementary course. Semester courses 50 and 54 are designed to familiarize the student with the principal art trends (architecture, sculpture, and painting) from the art of Egypt to the art of the present day. The courses offered in the hundred group treat in a more specific way subjects introduced and broadly sketched in the survey group. These courses not only serve majors, but are of general cultural interest and may supplement the work done in the departments of history and literature. A selection from the courses listed below, that is of elementary courses (numbered below 100), advanced courses (numbered in the hundreds), and exclusively graduate courses (numbered above 200), is offered each year in adequate sequence.

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

It is also recommended, especially for those who expect to teach history of art, that from 6 to 12 credits be taken in practice courses (design, painting, etc.), which may be secured in the Department of Art Education. The requirements for a teachers' certificate may be found under the School of Education.

Hispanic Studies as a Field of Concentration. Students interested in this major field should consult page 60.

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

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

50. Oriental, Greek, and Christian Art. II; 3 cr. The great originative styles of Egypt, Hellas, and the Christian West through the Gothic period in architecture, sculpture, and painting. Prerequisite: Sophomore standing. (While course 54 offers a continuation of the historical devel-

opment to the present day, it should be taken before course 50 as an introduction to the principles of the study of Art History.) 10 MWF. Mr. Hagen.

54. Renaissance to Modern Art: How the Artist Sees and Presents Reality. I; 3 cr. A survey of the representative masters and of such problems of vision as constitute the history of painting, sculpture, and architecture from the fifteenth century to the present age. Prerequisite: Sophomore standing. 10 MWF. Mr. Hagen.

101. History of the Graphic Arts. II; 3 cr. History of woodcut, engraving, and etching from the origins in the 15th century to the present day. Prerequisite: Sophomore standing. Mr. Stechow.

104. Renaissance and Baroque Sculpture. II; 3 cr. Prerequisite: Sophomore standing. Mr. Stechow.

106. Modern European Arts. I. The Generations of the 19th and 20th centuries. 3 cr. Prerequisite: A semester course in Art History. 11 MWF. Mr. Hagen.

110. Proseminary. Yr; 2 cr. Research problems in Medieval and Renaissance Art. Prerequisite: Consent of instructor. Mr. Schmeckebier.

111. Classical Mythology in Renaissance and Baroque Art. I; 2 cr. Prerequisite: Consent of instructor. Mr. Stechow.

112. Landscape Painting. II; 2 cr. Prerequisite: Sophomore standing. Mr. Stechow.

125. History of German Art. I; 3 cr. Prerequisite: Junior standing or Art History 54. Mr. Stechow.

131. American Architecture. II; 3 cr. Prerequisite: Sophomore standing. Not offered 1938-39. Mr. Kienitz.

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

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

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

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

156. British Painting from Holbein to the Pre-Raphaelites. I; 2 cr. Prerequisite: Art Hist. 54 or one semester of Art History. Mr. Hagen.

157. Patterns and Principles of Spanish Art. II; 2 cr. Prerequisite: Sophomore standing. Mr. Hagen.

158. Rembrandt and His Times. II; 3 cr. Prerequisite: One advanced course in Art History. Not offered 1938-39. Mr. Stechow.

159. Development of American Art. II; 3 cr. Prerequisite: Junior standing. Mr. Hagen.

210. SEMINARY. Yr; 2 cr. The subjects of research, which change from semester to semester, are generally chosen from the fields covered in the advanced courses. Prerequisite: Consent of instructor. Mr. Hagen.

ASTRONOMY

JOEL STEBBINS, Ph.D., Sc.D., *Professor of Astronomy, Chairman*
CHARLES MORSE HUFFER, Ph.D., *Assistant Professor of Astronomy*

6. NAVIGATION AND PRACTICAL ASTRONOMY. II; 2 cr. Prerequisite: Mathematics 2. 3:30 Tu, 10-12 S. Mr. Stebbins.

17. SURVEY OF ASTRONOMY. I, II; 3 cr. A brief course designed to fulfill in part the non-professional science option for the B.A. degree. May be credited by students in the Ph.B. and other courses as a free elective only. Not open to students who have taken Astronomy 1 or its equivalent. Lecture 1:30 MWF; work at observatory to be arranged. I. Mr. Stebbins; II. Mr. Huffer.

101. ASTROPHYSICS: THE SOLAR SYSTEM. I; 3 cr. Prerequisites: Mathematics 2, Physics 31. Mr. Huffer.

102. ASTROPHYSICS: STELLAR ASTRONOMY. II; 3 cr. Prerequisites: Mathematics 2, Physics 31. Mr. Stebbins.

116. CELESTIAL MECHANICS. Yr; 3 cr. Prerequisite: A course in calculus. Mr. Huffer.

200. RESEARCH. Yr; 3-5 cr. Graduate students and others qualified 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, may be printed in the Publications of the Washburn Observatory.

BACTERIOLOGY

(See Medical Bacteriology or Agricultural Bacteriology.)

BIOLOGY

Study in the biological sciences is conducted in the independent though coordinated Departments of Botany, Zoology, Anatomy, Physiology, Physiological Chemistry, Genetics, Pathology and Medical Bacteriology, Pharmacology and Toxicology, Plant Pathology, and Agricultural Bacteriology.

1. GENERAL BIOLOGY. Yr; 5 cr. An elementary one-year course in general biology may be taken by combining Botany 1 and Zoology 1, both of which are given each semester. Either one may precede the other, although the normal order is to follow botany with zoology. Introductory to botany, zoology, anatomy, bacteriology, and physiology. (See Botany 1 and Zoology 1.)

THE TEACHING OF BIOLOGY. See School of Education.

EDWARD MARTINIUS GILBERT, Ph.D., *Professor of Botany and Plant Pathology, Chairman*
CHARLES ELMER ALLEN, Ph.D., *Professor of Botany*
GEORGE SMITH BRYAN, Ph.D., *Professor of Botany*
BENJAMIN MINGE DUGGAR, Ph.D., *Professor of Physiological and Applied Botany*
GEORGE WANNAMAKER KEITT, Ph.D., *Professor of Plant Pathology*
NORMAN CARTER FASSETT, Ph.D., *Associate Professor of Botany*
EMMA LUELLA FISK, Ph.D., *Associate Professor of Botany*
MYRON PORT BACKUS, Ph.D., *Assistant Professor of Botany*
ROLLIN HENRY DENNISTON, Ph.D., *Assistant Professor of Botany*
RICHARD IRVING EVANS, Ph.D., *Assistant Professor of Botany*
JOHN FREDERICK STAUFFER, Ph.D., *Assistant Professor of Botany*
JOHN THOMAS CURTIS, Ph.D., *Instructor in Botany*
HENRY CAMPBELL GREENE, Ph.D., *Instructor in Botany*

MAJOR. 30 credits, including thesis, Botany 1, and an elementary course in zoology. A thesis is required of all seniors majoring in botany unless exception is made by the chairman of the department.

1. GENERAL BOTANY. I, II; 5 cr. Preliminary to all advanced work. Accepted with Zoology 1 to make up an elementary course in general biology. Lab. fee $5.00. Lecture I, 2:30 MW or 11 TT; II, 9 TT; 4 hrs. lab., 2 hrs. quiz. Mr. Bryan, Miss Fisk, and staff.

2. ADVANCED GENERAL BOTANY. II; 5 cr. Accepted as part of a teacher's minor or, with Botany 1, in satisfaction of the requirements of a year of natural science. The laboratory work of the course is a comprehensive survey of the plant kingdom and includes in the late spring the use of keys in the identification of many plants. The lectures deal primarily with the history of the development of the scientific spirit in biology and involve a discussion of the modern problems of evolution, inheritance, variation, etc. Prerequisite: Botany 1. Lab. fee $5.00. Lecture 11 TT; 4 hrs. lab., 2 hrs. quiz. Mr. Bryan, Miss Fisk and staff.

17. SURVEY OF BOTANY: NATURE OF THE PLANT WORLD. II; 3 cr. A brief course designed to fulfill in part the non-professional science option for the B.A. degree. May be credited by students in the Ph.B. and other courses as a free elective only. Open to all students, excepting those who have taken Botany 1 or its equivalent. Lab. fee $3.00. Lectures, discussion, and laboratory; 1:30-3:30 MW, 1:30 F. Mr. Evans.

100. SENIOR THESIS. Yr; 2-3 cr. A subject should be selected, whenever possible, before the close of the junior year. Lab. fee $1.50 per cr. 10 TT. Staff.

101. DISEASES OF PLANTS. I; 3 cr. Prerequisites: Botany 1 and Agr. Bact. 1. Lab. fee $4.50. 1:30-3:30 MWF. Mr. Walker, Mr. Backus.

102. METHODS IN PLANT PATHOLOGY. I; 3 cr. Prerequisite: Botany 101. Lab. fee $4.50. 10-12 MWF. Mr. Riker.

103. MORPHOLOGY OF ALGAE. I; 3 cr. Prerequisite: Botany 1. Offered 1938-39 and in alternate years. Lab. fee $3.50. 8-10 TTS. Mr. Allen.

104. MORPHOLOGY OF FUNGI. I; 3 cr. Prerequisite: Botany 1. Lab. fee $3.50. 8-10 MWF. Mr. Gilbert.

107. Morphology of Gymnosperms. I; 3 cr. Prerequisite: Botany 1. Offered 1937-38 and in alternate years. Lab. fee $3.50. 10-12 MWF. Mr. Bryan.

108. Morphology of Angiosperms. II; 3 cr. Prerequisite: Botany 1. Lab. fee $3.50. 8-10 MWF. Miss Fisk.

110. Plant Histology. I; 3 or 4 cr. Prerequisite: Botany 1. Lab. fee $3.50. 10-12 MWF. Mr. Denniston.

111. Microscopical Examination of Drugs and Foods. II; 3 cr. Prerequisite: Botany 110. Lab. fee $4.50. 10-12 MWF. Mr. Denniston.

112. Morphology of Bryophytes. II; 3 cr. Prerequisite: Botany 1. Offered 1937-38 and in alternate years. Lab. fee $3.50. 8-10 TTS. Mr. Allen.

113. Morphology of Pteridophytes. II; 3 cr. Prerequisite: Botany 1. Offered 1938-39 and in alternate years. Lab. fee $3.50. 10-12 MWF. Mr. Bryan.

117. Structure of Economic Plants. I; 3 cr. Prerequisite: Botany 1. Lab. fee $3.50. 8-10 MWF. Miss Fisk.

129. Classification of Cultivated Plants. I; 2 or 3 cr. Prerequisite: Botany 1. Lab. fee $3.00. 8-10 TT. Miss Fisk.

130. Identification and Classification of Seed Plants. II; 3 or 4 cr. Prerequisite: Botany 1. Lab. fee $3.00. 8-10 TTS. Mr. Denniston.

131. Dendrology. II; 2 cr. Prerequisite: Botany 1. Lab. fee $1.50. 3:30-5:30 TT. Mr. Denniston.

146. Plant Physiology. II; 4 cr. Prerequisites: Botany 1 and some elementary knowledge of physics and chemistry. Lab. fee $5.00. Lecture 11 TT; lab. 9-11 TT or 1:30-3:30 MW; quiz 9 S or 3:30 W. Mr. Stauffer.

153. Botanical Technique. Yr; 2 cr. Training in the preparation of plant material for study, including practice in killing, staining and mounting by the paraffin and freezing methods. Prerequisite: Botany 1. Lab. fee $3.00. 8-10 TT. Mr. Gilbert.

154. Evolution of Plants. I; 2 cr. Prerequisites: Botany 1 and 2. Offered 1937-38 and in alternate years. Lecture 2:30 MW. Mr. Allen.

156. Inheritance and Variation. II; 2 cr. Prerequisites: Botany 1 and 2. Offered 1938-39 and in alternate years. Mr. Allen.

160. The Flora of Wisconsin. II; 3 cr. Prerequisite: Botany 108 or 129 or 130 or consent of instructor. Lab. fee $3.50. Lect. 2:30 MF plus lab. Mr. Fassett.

162. Advanced Taxonomy. I; 2-4 cr. Prerequisite: Botany 129, 130, or 160. Fee $1.00 per credit. Lecture 3:30 MF plus lab. Mr. Fassett.

163. Identification and Classification of Grasses. I; 2 cr. Prerequisite: Botany 129 or consent of instructor. Fee $1.00 per credit. Lect. 3:30 Tu, plus lab. Mr. Fassett.

164. Plant Ecology. II; 3 cr. Lectures, laboratory and field trips. Prerequisite: Botany 1. Lab. fee $1.50. 1:30-3:30 TT plus field trips. Mr. Duggar, Miss Fisk, Mr. Fassett.

180. Advanced Botanical Problems. I, II; 2-5 cr. Individual work dealing with advanced phases of botany not taken up in the regular courses. Prerequisites: Upper-group standing and consent of instructor. See Section 20, page 66. Lab. fee $1.50 per cr. Staff.

200. Research. Yr; *cr. Investigation may be undertaken in any department of botany in which the student's preparation is adequate. Lab. fee $2.00 per credit. Staff.

213. Proseminary. Yr; 1 cr. Open to honor seniors and first year graduate students in botany. 4:30 W. Mr. Gilbert.

214. Seminary in General Botany. Yr; *cr. 4:30-6 W. Mr. Allen.

215. Seminary in Plant Physiology. Yr; *cr. 4:30-6 W. Mr. Duggar.

220. Advanced Mycology. Yr; 2 cr. Morphology and classification of fungi. Prerequisites: Botany 101, 104. Lab. fee $2.00. 1:30-3:30 TT. Mr. Gilbert.

221. Classification of Parasitic Fungi. Yr; *cr. Practice in the identification of parasitic fungi in field and laboratory, with discussions of principles used in classification and nomenclature. 3:30-5:30 F. Mr. Backus, Mr. Greene.

247. Advanced Plant Physiology. Yr; *cr. Prerequisite: Botany 146. Lab. fee $1.50 per lab. credit. 11 MW. Mr. Duggar and staff.

248. Physiological Methods and Materials. I; 3 cr. Laboratory procedures, primarily in quantitative physiology, with lectures and discussions. Prerequisite: Botany 146. Lab. fee $2.50. 8-10 TTS. Mr. Duggar, Mr. Stauffer.

249. Special Physiology of Pathogenic Fungi. II; 2-4 cr. Prerequisite: Botany 146. Lab. fee $1.50 per cr. 9 TT and lab. (Lab. 1-2 cr. optional.) Mr. Duggar.

250. Cytology. Yr; 5 cr. Prerequisites: Botany 1 and 2. Lab. fee $5.00. Lecture 10 TT; lab. 10-12 MWF. Mr. Allen.

252. Cytology of the Fungi. II; 1-2 cr. The various methods of fixation and staining of fungi, with laboratory exercises applying these methods in a study of bacteria and fungi. Prerequisite: At least one semester of general cytology. Lab. fee $1.50 per cr. Mr. Gilbert.

See Zoology 106 and 107 and Genetics 101-106 for other courses in evolution and heredity; also Horticulture 7 and 8 for courses in plant propagation and floriculture. The announcements of the Departments of Genetics and Horticulture appear under the College of Agriculture.

CHEMISTRY

JOSEPH HOWARD MATHEWS, Ph.D., *Professor of Chemistry, Chairman*
HOMER ADKINS, Ph.D., *Professor of Chemistry*
FARRINGTON DANIELS, Ph.D., *Professor of Chemistry*
RICHARD FISCHER, Ph.D., *Professor of Chemistry*
NORRIS FOLGER HALL, Ph.D., *Professor of Chemistry*
LOUIS KAHLENBERG, Ph.D., *Professor of Chemistry*
FRANCIS CRAIG KRAUSKOPF, Ph.D., *Professor of Chemistry*
SAMUEL MARION MCELVAIN, Ph.D., *Professor of Chemistry*
HENRY AUGUST SCHUETTE, Ph.D., *Professor of Chemistry*
JAMES HENRY WALTON, Ph.D., *Professor of Chemistry*
VILLIERS WILSON MELOCHE, Ph.D., *Associate Professor of Chemistry*
JOHN WARREN WILLIAMS, Ph.D., *Associate Professor of Chemistry*
MATTHEW LESLIE HOLT, Ph.D., *Assistant Professor of Chemistry*
MICHAEL WILLIAM KLEIN, Ph.D., *Assistant Professor of Chemistry*
WILLIAM EARL ROSEVEARE, Ph.D., *Assistant Professor of Chemistry*
CLARENCE HARVEY SORUM, Ph.D., *Assistant Professor of Chemistry*
MARVIN ANDREW SPIELMAN, Ph.D., *Assistant Professor of Chemistry*
WILBUR BENJAMIN BRIDGMAN, Ph.D., *Instructor in Chemistry*
JOHN ELA WILLARD, Ph.D., *Instructor in Chemistry*

REQUIREMENTS FOR THE MAJOR

Course No.	Title of Course	OPTIONAL FIELDS OF CONCENTRATION					
		Organic	Physical	Food	Inorganic	Premedical	Teaching
1	General chemistry and qualitative analysis	8-10 cr.	8-10 cr.	8-10 cr.	8-10 cr.	8-10 cr.	8-10 cr.
11	Quantitative analysis	6	8	7	8	6	8
120	Organic—lectures	4	4	4	4	4	4
121	Organic—laboratory	6	4	3	4	4	3
130	Physical—lectures	4	4	4	4	4	4
131	Physical—laboratory	4	6	3	4	4	3
100	Thesis	4	4	4	4	4	
123	Characterization of organic compounds	2					
146-7	Food chemistry			5			
104, 117	Physiological chemistry					8	
	Adv. technical elective				2		
	Total Credits	38-40	38-40	38-40	38-40	42-44	30-32

A minimum of 80 credits in subjects outside the major subject is required for graduation.

Chemistry 1a and Chemistry 1b are consecutive courses in general chemistry and are desirable courses for students majoring in other sciences or for those desiring a general cultural knowledge of chemistry. These two courses satisfy the requirement of 10 credits in science for the B.A. degree. The work in Chemistry 1a is devoted to theoretical chemistry and descriptive chemistry of the non-metals, and that of Chemistry 1b to the general chemistry of the metals and qualitative analysis. Students who have had adequate courses in chemistry in high school are placed in sections in which the work is more advanced. The equivalent of either of these courses may be taken in the summer session and Chemistry 1a is also offered in the second semester. Attention is directed to Chemistry 17 which may be combined with other "elementary survey" courses in science to satisfy the non-professional science requirement, but which is not accepted as a prerequisite for other courses in chemistry.

To be accepted as a major in chemistry, a student must have a grade-point average of 1.5 or better in chemistry courses taken in his first two years.

1a. General Chemistry. I; 5 cr. Lab. fee and deposit, $12.50. Lecture 9 WF, 10 TT, 11 TT, or 2:30 TT; 4 hrs. lab., 2 hrs. quiz. (Repeated second semester; lecture 2:30 MW.) Mr. Walton, Mr. Krauskopf, Mr. Sorum, Mr. Bridgman, Mr. Willard, and staff.

1b. General Chemistry and Qualitative Analysis. II; 5 cr. Continuation of Chemistry 1a, which is prerequisite: Lab. fee and deposit, $12.50. Mr. Walton, et al.

2a. General Chemistry. I; 4 cr. For freshmen in engineering only. Lab. fee and deposit, $12.50. Lecture 10 MW; 4 hrs. lab., 2 hrs. quiz. (Repeated second semester; lecture 2:30 MW.) Mr. Kahlenberg, Mr. Holt, and staff.

2b. General Chemistry and Qualitative Analysis. II; 4 cr. Continuation of Chemistry 2a, which is prerequisite. Lab. fee and deposit, $12.50. Mr. Kahlenberg, Mr. Holt, and staff.

3. Qualitative Analysis. II; 1 cr. Prerequisite: Concurrent registration in Chemistry 1b. Required of all chemistry course students. Lab. fee and deposit, $2.50. Mr. Bridgman and staff.

10. Mathematical Chemistry. I; 3 cr. Preparation for Chemistry 130. Not ordinarily open to candidates for the B.S. degree in chemistry. Prerequisites: Algebra, trigonometry, and Chemistry 1 or 2. 9 MWF. Mr. Daniels.

11. Quantitative Analysis. Yr; 3-5 cr. Prerequisite: General chemistry, including qualitative analysis. The first semester of this course is repeated in the second semester. Lab. fee and deposit, 3 or 4 cr., $17.50; 5 cr., $22.50. Lecture 9 TT; 3-9 hrs. lab. Mr. Hall and staff.

12. Quantitative Analysis. I; 3 cr. For agricultural students only. Prerequisite: General chemistry, including qualitative analysis. Lab. fee and deposit, $17.50. Lecture 1:30 Tu; 5 hrs. lab. Mr. Meloche and staff.

14. Quantitative Analysis. I; 5 cr. For engineering students only. Prerequisite: General chemistry, including qualitative analysis. Lab. fee and deposit, $22.50. Lecture 9 TT; 9 hrs. lab. Mr. Meloche and staff.

17. Survey of Chemistry: Nature of the Chemical World. II; 4 cr. A brief course designed to fulfill in part the non-professional science option for the B.A. degree. May be credited by students in the Ph.B. and other courses as a free elective only. Open to all students except those who have taken a more extended introductory college course in chemistry. Lecture, demonstration, and discussion. Fee and deposit, $2.00. Lectures and laboratory. Mr. Hall and staff.

20. Organic Chemistry. I, II; 2 cr. Prerequisite: Chemistry 1 or 2. An introductory course for students who do not have the time required for Chemistry 120, or who do not require so extensive a course. Courses 20 and 21 should be taken concurrently. Lecture 8 MWF. Mr. McElvain, Mr. Klein and staff.

21. Organic Chemistry. I, II; 2 cr. Prerequisite: Credit or concurrent registration in Chemistry 20. Lab. fee and deposit, $17.50. Lab. 6 hrs. Mr. McElvain, Mr. Klein, and staff.

30. Physical Chemistry. II; 3 cr. For chemical engineering students. Lab. fee and deposit, $12.50. Lecture 11 TT; lab. Mr. Williams and Staff.

99. Special Chemical Problems. I, II; 2-4 cr. Lab. fee, $4.25 per credit. Staff.

100. Senior Thesis. Yr; 2-3 cr. Lab. fee and deposit, 2 cr. $10; 3 cr. $12.50 per semester. Staff.

106. Advanced Analytical Practice. I, II; *cr. Prerequisite: Chemistry 11b. Special analytical techniques including microscopic and other instrumental methods. Lab. fee and deposit, 1 cr., $8:00; $4.50 per additional credit. Mr. Meloche.

107. History of Chemistry. I; 2 cr. Prerequisite: Chemistry 11, 120, or consent or instructor. Lecture 9 MW. Mr. Kahlenberg.

108. Advanced Qualitative Analysis. Yr; 2-5 cr. Offered 1939-40 and in alternate years. Prerequisite: Chemistry 1b. Lab. fee and deposit, 2 cr., no fee; 3 cr., $8.00; $4.50 per additional credit. 8 MW. Mr. Krauskopf.

113. Water Analysis. II; 1 cr. Prerequisite: Chemistry 11 or consent of instructor. Lab. fee and deposit, $6.50. Lecture and lab. 8-12 S. An eight-week course devoted to the sanitary chemical analysis of water and sewage. Mr. Schuette.

116. Industrial Organic Analysis. I, II; *cr. Prerequisites: Chemistry 11a and 20. Lab. fee and deposit, 1 cr. $8.00; $4.50 per additional credit. Mr. Schuette.

117. Inorganic Preparations. I, II; 2-5 cr. Prerequisite: Chemistry 1b or 2b. Lab. fee and deposit, 2 cr., $12.50; $4.50 per additional credit. Mr. Meloche.

118. Iron and Steel Analysis. I, II; 2-5 cr. Prerequisite: Chemistry 11 or 14. Lab. fee and deposit, 2 cr., $12.50; $4.50 per additional credit. Mr. Meloche.

119. Organic Analysis. I; 3 cr. Prerequisites: Chemistry 11a and 20. An introductory lecture-laboratory course on representative topics pertinent to the quantitative analysis of plant and animal substances and the semi-micro determination of elements and functional groups. Lab. fee and deposit, $15.00. Lecture 10 MW; lab. 1:30-4:30 MW. Mr. Schuette.

120. Organic Chemistry. Yr; 2 cr. Prerequisite: Chemistry 1 or 2. Courses 120 and 121 should be taken concurrently. Lecture 8 MW; quiz. Mr. Fischer and staff.

121. Organic Chemistry. Yr; 1-3 cr. Prerequisite: Credit or concurrent registration in Chemistry 120. Lab. fee and deposit, 1 cr., $12.50; 2 cr., $17.50; 3 cr., $22.50. Lab. 3 to 8 hrs. Mr. Fischer and staff.

123. Characterization of Organic Compounds. I; 4 cr. Prerequisites: Chemistry 120 and 121. A study of homologous reactions, separation, and identification of organic compounds. Designed as an aid to research involving organic compounds. Lab. fee and deposit, $17.50. Conference 1:30 Tu; lab. 1:30-5:30 TT. Mr. McElvain.

124. Advanced Survey of Organic Chemistry. I; 3 cr. Prerequisite: Chemistry 120. Lecture 10 TTS. Mr. Adkins.

125. Advanced Organic Preparations. Yr; *cr. Prerequisite: Chemistry 121. Lab. fee and deposit, 1 cr., $8.00; $4.50 per additional credit. Mr. Fischer, Mr. Adkins, Mr. McElvain, Mr. Klein.

130. Physical Chemistry. Yr; 2 cr. Prerequisites: Chemistry 1 and 11; Physics 1 or 31; Math. 5a and 5b; or consent of instructor. Courses 130 and 131 should be taken concurrently. Lecture 11 MWF. Mr. Mathews, Mr. Roseveare, and staff.

130. Physical Chemistry. (For students in chemical engineering). Yr; 2 cr. Prerequisites: Chemistry 14; Physics 51 and 52; Mathematics 54 and 55. Lecture 10 MWF. Mr. Daniels and staff.

131. Physical Chemistry. Yr; 1-3 cr. Prerequisite: Credit or concurrent registration in Chemistry 130. Lab. fee and deposit, 1 cr., $12.50; 2 cr., $15.00; 3 cr., $17.50. Lab. 3 to 8 hrs. Mr. Daniels, Mr. Roseveare, and staff.

132. Thermal Chemistry. I; 2 cr. Prerequisites: Chemistry 130 and 131. Offered 1939-40 and in alternate years. Lecture 9 TT. Mr. Mathews.

133. Photochemistry. I; 2 cr. Prerequisites: Chemistry 130 and 131. Offered 1938-39 and in alternate years. Lecture 9 TT. Mr. Mathews.

135. Chemistry of Solutions. II; 2 cr. Prerequisite: Chemistry 130. Offered 1938-39. Lecture 9 MW. Mr. Kahlenberg.

146. Chemistry of Foods and Their Adulteration. II; 2 cr. Prerequisites: Chemistry 11a and 20. Critical study of typical raw and manufactured foods from the standpoint of (1) fundamental basis of nutritional value and (2) character and legal status of adulteration. 10 MWF. Mr. Schuette.

147. Chemistry of Foods and Their Adulteration. II; 1-3 cr. Prerequisite: Chemistry 146 or concurrent registration. A laboratory course to accompany, if desired, Chemistry 146. Fee and deposit, 1 cr., $12.50; $2.50 per additional credit. 1:30-4:30 MWF. Mr. Schuette.

148. Introduction to Physical and Colloid Chemistry. I; 3-5 cr. Particularly for students in the biological sciences. Lab. fee and deposit, 1 cr., $12.50; 2 cr., $15.00; 3 cr., $17.50. Prerequisite: Consent of instructor. Offered 1939-40. Lecture 8 MWF. Mr. Williams and staff.

149. Colloid Chemistry. I; 2 cr. Prerequisites: Chemistry 130 and 131. Lecture 11 MW. Mr. Williams.

151. Advanced Inorganic Chemistry. Yr; 2 cr. Offered 1938-39 and in alternate years. Lecture 11 TT. Mr. Hall.

153. Advanced Instrumental Analysis. I, II; *cr. Prerequisite: Chemistry 131. Lab. fee and deposit, 1 cr., $8.00; $4.50 per additional credit. Mr. Meloche.

155. Advanced Quantitative Analysis. I; 2 cr. Offered 1939-40 and in alternate years. Lecture 11 TT. Mr. Hall.

161. The Phase Rule. II; 2 cr. Offered 1939-40 and in alternate years. Prerequisite: Chemistry 130. 9 TT. Mr. Sorum.

200. Research in Chemistry. Yr; *cr. Lab. fee and deposit, $4.50 per credit. Staff.

209. Lives of Great Chemists. II; 2 cr. Offered in 1939-40. Mr. Kahlenberg.

223. Theoretical Organic Chemistry. II; 3 cr. Prerequisite: Chemistry 124. Lecture 10 TTS. Mr. Adkins, Mr. McElvain.

224. Advanced Organic Chemistry. 3 cr. Prerequisite: Chemistry 120. 11 MWF. Mr. Fischer et al.

230. Advanced Physical Chemistry. Yr; 3 cr. Prerequisites: Chemistry 130 and 131. Lecture 8 TTS. I. Mr. Daniels. II. Mr. Roseveare.

234. Chemical Thermodynamics. I; 2 cr. Prerequisite: Chemistry 230. Offered in 1939-40 and in alternate years. 9 TT. Mr. Roseveare.

236. Chemical Kinetics. II; 2 cr. Offered 1938-39 and in alternate years. Prerequisite: Chemistry 130. 9 TT. Mr. Daniels.

237. Quantum Chemistry. II; 2 cr. Prerequisite: Chemistry 240. Offered in 1939-40 and in alternate years. Lecture 9 TT.

238. Chemistry Seminary. Yr; 1 cr. 4:30 W. Mr. Kahlenberg, Mr. Holt.

239. Seminary in Physical and Colloid Chemistry. Yr; 1 cr. Prerequisite: Chemistry 130. 7:15 p.m. M. Mr. Mathews, Mr. Daniels, Mr. Williams, Mr. Roseveare.

247. Seminary in Organic Chemistry. Yr; 1 cr. 10 W. Mr. Fischer, Mr. Adkins, Mr. McElvain, Mr. Klein.

249. Advanced Colloid Chemistry. II; 2 cr. Prerequisite: Chemistry 149. Lecture 11 MW. Mr. Williams.

252. Seminary in Inorganic and Analytical Chemistry. Yr; 1 cr. Mr. Hall, Mr. Meloche.

254. Seminary in Foods and Sanitation. Yr; 1 cr. Mr. Schuette.

263. Seminary in General Chemistry. Yr; 1 cr. Mr. Walton, Mr. Krauskopf, Mr. Sorum, Mr. Bridgman, Mr. Willard.

TEACHERS' COURSE

The Teaching of Chemistry. See School of Education.

CLASSICS

Walter Raymond Agard, B.Litt., *Professor of Greek, Chairman*
Alban Dewes Winspear, M.A., *Associate Professor of Classics*
John Paul Heironimus, Ph.D., *Assistant Professor of Classics*
John Jacob Schlicher, Ph.D., *Assistant Professor of Latin*
Sherman LeRoy Wallace, Ph.D., *Assistant Professor of Classics*

Major. In Greek, 28 language credits, exclusive of Greek 1; in Latin, 30 language credits beyond Latin 1b (or two years of high-school Latin), 22 language credits beyond Latin 10b (or four years of high-school Latin).

Students choosing a foreign-language major must present at least eight credits in a second foreign language.

For teaching major see School of Education.

GENERAL COURSES IN CLASSICS

A knowledge of Greek and Latin is not required as a prerequisite to the general courses in classics. They are not foreign language courses. They may be credited toward the degree as "free electives," but may not be counted toward the general foreign-language requirement of any degree.

41. GREEK LIFE AND LITERATURE. I; 2-3 cr. A presentation, by lectures, reading, and discussion, of Greek literature in translation, with sufficient attention to the life of the times to make this literature better understood. Students taking the course for three credits will do additional reading and a final paper. Open to freshmen. Offered 1938-39 and in alternate years. Lecture 9 MW; one discussion period. Mr. Agard, Mr. Winspear.

42. ROMAN LIFE AND LITERATURE. II; 2-3 cr. A presentation by lectures, reading, and discussion, of Latin literature in translation, with sufficient attention to the life of the times to make this literature better understood. Students taking the course for three credits will do additional reading and a final paper. Open to freshmen. Offered 1938-39 and in alternate years. Lecture 9 MW; one discussion period. Mr. Winspear, Mr. Wallace.

51. CLASSICAL MYTHOLOGY. I; 1-2 cr. A survey of classical myths and their influence on later European literature and art. For one credit, textbook and illustrated lectures; for two credits, additional reading and a final paper. Open to freshmen. Not offered 1938-39. 10 TT. Mr. Agard.

122. CLASSICAL ART AND ARCHAEOLOGY. II; 3 cr. The contribution of archaeology to an understanding of classical life, and a critical analysis of Greek and Roman art. Prerequisite: Sophomore standing. Not offered 1938-39. 9 MWF. Mr. Agard, Mr. Wallace.

133. EARLY CHRISTIANITY AND THE GRAECO-ROMAN WORLD. I; 2-3 cr. The Old and New Academy, the Peripatetic School, Stoic and Epicurean, Philo Judaeus and the Christian Platonic School at Alexandria, Greek and Roman religious cults, Roman imperial organization and its influence on the development of ecclesiastical organization. Prerequisites: Sophomore standing; for three credits, reading knowledge of Greek or Latin (counting one credit toward Greek or Latin major.) Offered 1938-39 and in alternate years. 10 MW. Mr. Winspear.

GREEK

1. ELEMENTARY GREEK. Yr; 4 cr. Study of forms and syntax, with translation of easy Greek prose. 2:30 MTTF. Mr. Agard.

10. HOMER AND PLATO. Yr; 3 cr. *Iliad, Apology, Crito.* Prerequisite: Greek 1. 11 MWF. Mr. Agard, Mr. Wallace.

20. GREEK DRAMA AND LYRIC POETRY. Yr; 3 cr. Euripides' *Medea,* Sophocles' *Antigone,* and selections from Aeschylus, Aristophanes and the lyric poets. Prerequisite: Greek 10. 9 TTS. Mr. Agard.

100. SENIOR THESIS. Yr; 2 cr.

106. HERODOTUS AND THUCYDIDES. Yr; 3 cr. A study of the sources for Greek fifth-century history by means of reading, essays, and lectures. Prerequisite: Greek 20 or concurrent registration. Offered 1938-39 and in alternate years. 10 TTS. Mr. Winspear.

108. PLATO. Yr; 3 cr. Prerequisite: Greek 20 or concurrent registration. Not offered 1938-39 and in alternate years. 10 TTS. Mr. Winspear.

109. ARISTOTLE. Yr; 3 cr. The *Nicomachean Ethics* and selected passages from the *Politics* and *Metaphysics*. Prerequisite: Greek 108 or consent of the instructor. Not offered 1938-39. 10 TTS. Mr. Winspear.

180. DIRECTED READING FOR SENIORS. A limited number of credits can be arranged for work done on the tutorial or honor system by seniors whose previous records have been satisfactory. Students who wish to arrange any part of their work in this way should consult the appropriate instructor and the chairman of the department before the end of the junior year. This work is open only to upper-group majors in the department by consent of the instructor. See section 20, page 66.

211. GREEK DRAMA. Yr; 3 cr. Two plays each of Aeschylus, Sophocles, Euripides, and Aristophanes, with lectures and directed readings in the history of the Greek drama. Prerequisite: Graduate standing. Not offered 1938-39. Mr. Agard.

215. PINDAR. I; 3 cr. Prerequisite: Graduate standing. Not offered 1938-39. Mr. Agard.

226. GREEK SOUNDS AND FORMS. II; 2 cr. Offered 1938-39. Mr. Dillon.

230. GREEK SEMINARY. Yr; 2 cr. The subject varies from year to year. In 1938-39 it will be the early Greek philosophers. Prerequisite: Graduate standing. Mr. Winspear.

LATIN

1a. ELEMENTARY LATIN. I, II; 4 cr. The elements of the language, including forms and syntax with simple translation into Latin and English, equivalent to a year of high-school work. First semester: 8, 1:30, 2:30, 3:30 MTWF; second semester, 8 MTWF. Mr. Heironimus, Staff.

1b. CAESAR. I, II; 4 cr. The equivalent of the second year of high-school Latin. Continuation of the work of 1a and reading of selections from the Gallic War. Prerequisite: Latin 1a or one year of high-school Latin. First semester: 8 MTWF; second semester: 8, 1:30, 2:30, 3:30 MTWF. Mr. Heironimus, Staff.

10a. CICERO. I, II; 4 cr. Selections from Cicero's orations and other prose authors; prose composition. Prerequisite: Latin 1b, or two years of high-school Latin. First semester: 9 MTWF; second semester 8 MTWF. Mr. Schlicher.

10b. VIRGIL. I, II; 4 cr. The parts read are taken from the first six books of the *Aeneid*. Prerequisite: Latin 10a or three years of high-school Latin. First semester: 2:30 MTTF; second semester: 9 MTWF. Mr. Wallace, Mr. Schlicher.

21. GENERAL SURVEY. Yr; 3 cr. (4 cr. for students in the Classical Humanities Course, who will devote part of the time to Latin composition.) Reading of illustrative selections from Virgil, Lucretius, and the elegiac poets, with a more extended study of Catullus and the Odes of Horace. Letters of Cicero and Pliny with selections from Tacitus will be read to illustrate the social and political background of the Republic and the Empire. Prerequisite: Latin 10b, or four years of high-school Latin. 11 MWF. Mr. Winspear.

31. PLINY AND MARTIAL. I; 3 cr. Selected letters of Pliny and epigrams of Martial are read with attention to the various phases of Roman life reflected in them. Prerequisite: Latin 21. 10 MWF. Mr. Wallace.

32. Sallust and Livy. II; 3 cr. The *Jugurthine War* of Sallust and selections from Livy, illustrating the national experience of the Roman people at various important periods in their history. Prerequisite: Latin 21. 10 MWF. Mr. Wallace.

35. Intermediate Latin Composition. I; 2 cr. A survey of Latin grammar, with exercises illustrating the syntax and idioms of the language. Prerequisite: Latin 21. 10 TT. Mr. Heironimus.

100. Senior Thesis. Yr; 2 cr.

101. Advanced Latin Composition. II; 2 cr. Exercises in connected discourse. Especial attention given to the differences between Latin and English in sentence structure and idiom. Prerequisite: Latin 35. 10 TT. Mr. Schlicher.

106. Roman Elegiac Poets. II; 2 cr. Selections from Tibullus, Propertius, and Ovid. Lectures and assigned reading on the Augustan age. Prerequisite: Latin 32. Not offered 1938-39. Mr. Heironimus.

108. Cicero's Letters. I; 3 cr. The life, times, and works of Cicero, with reading from the letters. Prerequisite: Latin 32. Not offered 1938-39. 10 MWF. Mr. Wallace.

109. Roman Drama. II; 3 cr. Selected comedies of Plautus and Terence. Lectures and assigned reading on the history of classical drama and its influence. Prerequisite: Latin 32. Not offered 1938-39. Mr. Wallace.

110. Lucretius. II; 3 cr. As much as possible of the *De Rerum Natura*, with background in the history of philosophy in Greece and Rome. Prerequisite: Latin 32. Not offered 1938-39. 10 MWF. Mr. Winspear.

111. Virgil. I; 3 cr. A review of the works of Virgil, with special attention to the literary art of the *Aeneid*. Prerequisite: Latin 32. Offered 1938-39 and in alternate years. 9 MWF. Mr. Wallace.

115. Roman Biography. II; 3 cr. Suetonius, lives of Caesar and Augustus, the *Agricola* of Tacitus, and several biographies of Nepos and the *Historia Augusta* are read, either in class or privately. Attention is given to ancient biography as a type, and to the use made of it in other fields. Prerequisite: Latin 32. Offered 1937-38 and in alternate years. 11 MWF. Mr. Heironimus.

118. Roman Satire. II; 3 cr. Selected satires of Horace, Persius, and Juvenal. Study of satire as a literary *genre*. Lectures and assigned reading on the social conditions at Rome in the time of the Empire. Prerequisite: Latin 32. Offered 1938-39 and in alternate years. 11 MWF. Mr. Heironimus.

119. Tacitus. I; 2 cr. The principate of Tiberius and Augustus is studied by lectures, recitations and reports. Prerequisite: Latin 32. Offered 1938-39. 11 TT. Mr. Winspear.

130. Medieval Latin. I; 2 cr. Not offered 1938-39. Mr. Heironimus.

180. Directed Reading for Seniors. (See Greek 180.)

225. Latin Sounds and Forms. Yr; 2 cr. Lectures on the history of Latin sounds and forms and their relation to those of other languages, supplemented by reports and class discussion. Not offered 1938-39. 11 TT.

231. LATIN LITERATURE. Yr; 3 cr. A comprehensive survey, with the reading of selected works or illustrative passages from various authors, and a consideration of their antecedents and relationships. In 1938-39, the Early Empire. 9 MWF. Mr. Heironimus.

233. LATIN SEMINARY. Yr; 2 cr. The work varies from year to year according to the author or subject taken up. All seminaries, however, deal with the principles of textual criticism, as well as with literary, rhetorical, and historical interpretation. Subject for 1938-39: Literature in the Ciceronian Period. 3:30-5:30 Th. Mr. Schlicher.

TEACHERS' COURSE

THE TEACHING OF LATIN. See School of Education.

COMMERCE

FAYETTE HERBERT ELWELL, B.A., C.P.A,. *Professor of Accounting, Director*
ROBERT RAY AURNER, Ph.D., *Professor of Business Administration*
MARTIN GUSTAVE GLAESER, Ph.D., *Professor of Economics and Commerce*
HARRY JEROME, Ph.D., *Professor of Economics and Commerce*
CHESTER LLOYD JONES, Ph.D., *Professor of Commerce and Political Science*
WILLIAM BAYARD TAYLOR, Ph.D., *Professor of Finance*
HENRY ROSCOE TRUMBOWER, Ph.D., *Professor of Commerce and Economics*
DONALD ROSS FELLOWS, M.A., *Associate Professor of Business Administration*
PHILIP GORDER FOX, M.A., *Associate Professor of Business Administration*
JOHN CURRIE GIBSON, B.A., C.P.A., *Associate Professor of Accounting*
IRENE HENSEY, M.S., *Assistant Professor of Accounting*
ALFRED WALTER PETERSON, B.A., *Lecturer in Accounting*
WILLIAM HENRY SPOHN, B.A., LL.B., *Lecturer in Commerce*
HAROLD EDWARD KUBLY, Ph.D., *Instructor in Commerce*
ANGELINE GENEVIEVE LINS, B.A., *Instructor in Accounting*
HARRY MICHAEL SCHUCK, M.A., LL.B., *Instructor in Accounting*

The following list contains courses in commerce which students in the School of Commerce may offer in satisfaction of the requirements for a major. Certain of these courses are required; others are subject to election within groups, and still others may be taken as free electives toward the major. Requirements for the major including group requirements, may be found on page 84.

Unless otherwise noted all of these courses, with the exception of starred courses (*), may be taken for credit by Letters and Science students not in the School of Commerce.

COMMERCE

ACCOUNTING

*8. ELEMENTS OF ACCOUNTING. I, II; 3 cr. Principles of double-entry bookkeeping. The use of the fundamental books; the treatment and proper statement of sole proprietorship, partnership, and corporation accounts. Prerequisite: Sophomore standing. Fee $1.50. Lecture I, 11 Tu; 4 hours lab. and discussion; lecture II, 11 Th.; 4 hours lab. and discussion. Mr. Elwell and staff.

*In the College of Letters and Science this course may be counted as part of the credits required for graduation only by students in the School of Commerce.

9. Intermediate Accounting. I, II; 4 cr. The theories of general financial accounting with problems illustrating their application. Particular attention to the preparation and analysis of profit and loss statements and balance sheets. Prerequisites: Commerce 8 and Mathematics 7. Fee $2.50. Lecture I, 11 Th; 6 hours lab. and discussion; lecture II, 11 Tu; 6 hours lab. and discussion. Mr. Elwell and staff.

108. Accounting Principles. Yr; 4 cr. An introductory course in accounting, and income taxes. In the first semester, more attention is given to the theory and principles of accounting than to the technique. In the second semester, the application of these principles is made to the federal and state income tax laws. Prerequisite: Graduate standing, enrollment in the Law School, or consent of instructor. Fee $1.00. 9 MW. Not offered first semester 1938-39. Mr. Gibson, Mr. Schuck.

181. Advanced Accounting Problems. I; 3 cr. Theories underlying advanced financial accounting in specialized fields with problems illustrating their application. Should be taken in the junior year by accounting majors. Prerequisite: Grade of B in Commerce 9. Fee $1.50. 8-10 MWF. Mr. Gibson, Miss Lins.

182. Cost Accounting. II; 2 cr. Theories underlying cost accounting, its relationship to financial books, accounting for materials, labor and indirect expense, and treatment of selling and administrative expenses. Should be taken in the junior year by accounting majors. Prerequisite: Grade of C in Commerce 9. Fee $1.50. 8-10 TT. Mr. Gibson, Miss Hensey.

183. Accounts of Consolidations and Income Taxes. I; 2 cr. Accounts of amalgamations, mergers, and holding companies; consolidated balance sheets and profit and loss statements. Study of, and problems based upon, the federal and Wisconsin income tax laws. Should be taken in the senior year by accounting majors. Prerequisite: Grade of C in Commerce 9. Fee $1.50. 8-10 TT. Mr. Gibson, Miss Hensey.

184. Auditing. II; 3 cr. The general principles of auditing, including a detailed study of different kinds of audits, the preparation of reports, and the consideration of special points in different classes of audits. Should be taken in the senior year by accounting majors. Prerequisites: Grade of B in Commerce 9, senior standing, and registration in the School of Commerce. Fee $1.50. 8-10 MWF. Mr. Elwell, Miss Lins.

185. Analysis of Financial Reports. I; 2 cr. Analysis of corporation reports with particular reference to statement structure, meaning of accounts, and ratios. Prerequisite: Commerce 9. Fee $1.00. 2:30 TT. Mr. Elwell, Miss Lins.

186. Accounting Systems. II; 2 cr. The general principles of constructive accounting and the designing of systems for various industries. Each student must design a complete and practicable accounting system for some industry. Should be taken in the senior year by accounting majors. Prerequisites: Upper-group status, Grade of B in Commerce 9, and registration in the School of Commerce. Fee $1.00. 10 TT. Mr. Elwell, Miss Lins.

187. Governmental Accounting. I; 2 cr. The requirements of accounting systems of governmental units, federal, state, county, and municipal. Special study of budgets and reports. Should be taken in the senior year

by accounting majors. Prerequisites: Upper-group status, Grade of B in Commerce 9, and registration in the School of Commerce. Fee $1.00. 10 TT. Mr. Elwell, Miss Lins.

188. BUDGETS AND BUDGETARY CONTROL. I; 2 cr. The general principles of budgeting. Study of the mechanics involved in the preparation of budgets; the establishment of suitable standards of measurement; the procedure for budget comparison, revision, and coordination; budgetary control of departmental activity; the preparation of reports and compilation of data for the formulation of future budgets. Prerequisite: Commerce 9. Fee $1.00 1:30 TT. Mr. Peterson.

199. PUBLIC UTILITY AND INSTITUTIONAL ACCOUNTING. 2 cr. The application of the general principles of accounting to public utilities. Cost analysis and rate determination. Study of accounting procedures, forms of reports, and classification of accounts as prescribed by regulatory commissions. The application of the principles of accounting to public and private institutions, such as clubs, colleges, foundations, and hospitals. Prerequisite: Commerce 9. Fee $1.0. 1:30 TT. Not offered 1938-39. Mr. Peterson.

283. SEMINARY IN ACCOUNTING. Yr; 2 or 4 cr. Graduate students conduct and report upon researches on various accounting problems. In addition, assignments are made on advanced accounting topics. Prerequisites: Graduate standing and consent of instructor. Staff.

BANKING AND FINANCE

105. MONEY AND BANKING. I, II; 3 cr. Basic principles of money, credit and deposit banking. Nature, characteristics and functions of money. The banking structure, operations and banking theory. Prerequisite: Economics 1a. Lecture 10 TT; one discussion period. Mr. Morton and staff.

110. INVESTMENTS. I, II; 2 cr. Private and social implications of the demand for, supply of, and yield on capital funds. Principles of analysis applicable to the broader classifications of securities—government, public utility, real estate, industrial. Critique of the current system of security flotation, distribution, and transfer. Sources of investment information. Prerequisite: Commerce 137. 3:30 MW. Mr. Taylor.

133. FINANCIAL HISTORY OF THE UNITED STATES. I; 3 cr. The development of monetary and financial institutions and practices from colonial times to the present. Federal, state and municipal finance. Tariff legislation and its financial implications. Financial aspects of economic development. War finance. International financial relations. Prerequisite: Junior standing. 10 MWF. Mr. Morton.

137. CORPORATION FINANCE. I, II; 3 cr. The economic significance of the corporate unit in present-day enterprise; its organization, management, and control. The financial relationships of proprietorship and creditorship, management and ownership during normal and abnormal periods of business activity. Obtaining and administering working and fixed capital; the determination of income and its management. The purpose and procedure of financial reorganization. Prerequisite: Economics 1a. Lecture 9 TT; one discussion period. Mr. Taylor.

191. THE CREDIT SYSTEM. II; 3 cr. National and international aspects of central banking. Monetary problems. Balance of international payments, rates of exchange and international equilibrium. Functions of central

banks and the nature and objectives of credit policy. Monetary economics including monetary standards, the value of money, monetary equilibrium, employment output and prices. Monetary policy and public finance. Prerequisite: Commerce 105. 10 MWF. Mr. Morton.

205. Banking and Monetary Theory. Yr; 2 cr. Survey of the history of the theories of money and of banking policy. Analysis of the relation between monetary policy and production, prices, capital formation, and economic activity. Central and commercial banking policies in relation to business and government. The meaning and significance of liquidity, solvency, the gold standard, managed currency, stability, inflation and deflation. Prerequisites: A course in money and banking and graduate standing. 11 TT. Mr. Morton.

237. Seminar in Finance. Yr; 2 cr. Comprehensive and intensive consideration of selected problems of current and permanent import in financial administration. Individual research, class reports, and group discussion. Prerequisites: Graduate standing and consent of instructor. 7-9 p.m. M. Mr. Taylor.

BUSINESS ETHICS

43. Business Ethics. I, II; 2 cr. The rules of fair competition. Standards of fair service. Fair price, fair wage, and the justice of the present system of distributing wealth. Prerequisite: Sophomore standing. 9, 10, 11, or 1:30 TT. Mr. Fox, Mr. Kubly.

COMMERCIAL LAW

109. Legal Aspects of Business Relations. I; 3 cr. Legal aspects of business relations, not including a study of partnership or corporations. Prerequisite: Senior standing or consent of instructor. Fee $1.0.0 Lecture 8-10 S; one discussion period. Mr. Spohn.

FOREIGN TRADE

151. Latin America. I; 3 cr. The economic development and foreign trade of Latin America, with emphasis on the stabler republics. The outlook for foreign trade and investment. Prerequisite: Economics 1a. 11 MF; one discussion period. Mr. Lloyd Jones.

156. International Trade. II; 3 cr. A general course in foreign trade and foreign trade policy with special reference to the United States. Prerequisite: Junior standing. 11 MWF. Mr. Lloyd Jones.

251. Seminary in Latin-American Development and Trade. I, II; 2 cr. The staple products in Latin America. Foreign investments in government securities and local enterprises. Changes in the course of foreign trade. Prerequisite: Graduate standing or consent of instructor. Mr. Lloyd Jones.

INDEPENDENT READING AND RESEARCH IN BUSINESS SUBJECTS

180. Reading and Research in Business Subjects. Yr; *cr. The prerequisites for the independent work of this course are senior standing and candidacy for degree with honors in the major. Students electing this

work will be expected to pass comprehensive examinations in the field of their major. Staff.

280. READING AND RESEARCH IN BUSINESS SUBJECTS. Yr; *cr. Both during the regular session and in the inter-session periods individual work suited to the needs of graduate students may be arranged. Prerequisite: Graduate standing. Staff.

MARKETING

*6. ENGLISH IN BUSINESS. I, II; 3 cr. The place of English in modern economic life. Training is given in developing (1) effective business letters and in creating (2) well-organized business reports and (3) other major types of business communication, including requests, adjustments, collections, applications, sales, and market analyses. Special projects and collateral readings. Prerequisite: Junior standing. Fee $1.00. Lecture 9 WF; one discussion period. Mr. Aurner.

*13. MARKETING METHODS. I, II; 3 cr. Activities of producer, wholesaler, and retailer in the distribution of goods to the consumer, including presentation of how efficient advertising and selling reduce distribution costs. Prerequisites: Economics 1a and junior standing. Lecture 9 MW; one discussion period. Mr. Fellows.

*15. PRINCIPLES OF ADVERTISING. I; 2 cr. An introductory course in advertising including an explanation of its importance in the distribution of consumer's goods. Methods of advertising and the development of copy and layout of the complete advertisement. Prerequisite: Junior standing or consent of instructor. Lecture 9 Th; one discussion period. Mr. Fellows, Mr. Aurner.

114. MARKETING MANAGEMENT. II; 2 cr. An advanced course in marketing procedure with special emphasis on purpose, development, and scope of personal selling and its position in marketing management from the standpoint of the sales executive; discussion of methods of selecting, training and paying salesmen; market analysis and research with a view to efficient coordination of production and distribution. Prerequisite: Commerce 13. 9 TT. Mr. Fellows.

116. PROBLEMS IN NATIONAL ADVERTISING. II; 2 cr. An advanced course based on major problems in advertising with special reference to the national program and the consumer. Emphasis given to the economic functions of the activities discussed, their service, limitations, and possible abuses. Collateral readings, market studies, and certain creative projects are included. Prerequisites: Commerce 13 and 15. Lecture 10 F; one discussion period. Mr. Aurner.

170. MERCHANDISING. I; 2 cr. Principles and problems in merchandising with special reference to the position of the consumer, and to organization and administration. Problems give emphasis to the economic functions of merchandising activities; buying, planning, and control; expense distribution; promotion; personnel administration; operating efficiency; and expense

*Technical subject in the School of Commerce; may be taken by other students in the College of Letters and Science only as an extra study, and the credits earned may not be included in the total of 120 required for graduation. Commerce 6, 13, and 15 are open to students in the School of Journalism on the same basis as to Commerce students.

reduction through cooperation. Open to advanced students who are advised (but not required) to precede it with Commerce 15 and 116. Prerequisite: Commerce 13. Lecture 10 F; discussion period 10 M or 10 W. Mr. Aurner.

213. SEMINARY, MARKETING OF MANUFACTURED GOODS. Yr; 2 cr. Studies in marketing, sales promotion, and retailing activities necessary in the distribution of manufactured commodities from producer to consumer. Constructive marketing problems are worked out from current business procedure. Prerequisite: Graduate standing. 2:30-4:30 M. Mr. Fellows, Mr. Aurner.

PUBLIC UTILITIES

135. RAILWAY TRANSPORTATION. I; 2-3 cr. History and development of railway transportation and regulation in the United States. Prerequisite: Economics 1a. 11 MWF. Mr. Trumbower.

136. TRANSPORTATION PROBLEMS. II; 2-3 cr. Survey and analysis of present-day problems relating to railway transportation, the operation of highway carriers, development of waterways, and air transport. Prerequisite: Economics 1a. 2:30 MTW. Mr. Trumbower.

142. PUBLIC UTILITIES. I, II; 3 cr. The development of public utilities in the United States. Financial and corporate structure. Legal basis of public utility regulation. Development of regulatory agencies—franchises administrative commissions, contractual arrangements. Valuation, depreciation, security issues and rates of return. Public ownership. Prerequisite: Economics 1a. Lecture 8 MF; one discussion period. Mr. Glaeser.

168. HIGHWAY TRANSPORTATION. I; 3 cr. Economic aspects of highway development, financing of highway construction, supervision of motor vehicle traffic, and regulation of highway common carriers. Prerequisite: Economics 1a. 2:30 MTW. Mr. Trumbower.

189. RAILWAY RATES AND TRAFFIC. II; 2-3 cr. Freight rate structure, adjustment rates by the Interstate Commerce Commission, traffic control and management. Prerequisite: Economics 1a. 11 MWF. Mr. Trumbower.

195. PUBLIC UTILITY MANAGEMENT. II; 3 cr. Survey of management problems of local utilities; accounting and statistical controls; economics of regulated monopoly price, cost analyses and differential rates; service and labor problems; standards of operating efficiency. Prerequisite: Commerce 142. 1:30 M, 1:30-3:30 W. Mr. Glaeser.

266. SEMINARY IN PUBLIC UTILITIES. Yr; 2 cr. Research investigations in the field of local public utilities and transportation. Prerequisite: Graduate standing or senior standing with consent of instructor. 3:30-5:30 W. Mr. Glaeser, Mr. Trumbower.

RISK AND INSURANCE

121. PROPERTY INSURANCE. II; 2 cr. Economic services, contracts, benefits, and premiums in the fields of fire, use and occupancy, marine, automobile, credit, surety and fidelity, public liability, title, and other miscellaneous forms of insurance underwriting. Prerequisite: Commerce 139.

138. Life Insurance. I; 2 cr. Mortality tables, premium rates, reserves, policy forms, investments, legal principles, and state supervision in the field of life underwriting. Prerequisite: Commerce 139.

139. Principles of Insurance. I; 3 cr. An introductory course designed (1) to precede advanced work in insurance and prerequisite thereto, and (2) to acquaint the non-specialist with the economic and social services of the institution of insurance; risk and risk-bearing, carriers and contracts, rates and reserves, carrier organization and management, the purchase of insurance, state regulation and operation. Prerequisite: Economics 1a.

140. Problems in Insurance. Yr; 2 cr. Problems chosen from the several fields of insurance and involving the application of the basic principles studied in other courses; individual investigation, class reports and discussions. Prerequisites: Commerce 139 and 121 or 138.

154. Risk and Profit. I; 3 cr. Nature and sources of risk and profit in business industry; the price system, its functions and defects; financial aspects of business cycles; business forecasting; the stock market. Prerequisite: Minimum grade of C in Commerce 105. 10 MWF. Not offered 1938-39. Mr. Morton.

STATISTICS

31. Business Statistics. I, II; 3 cr. Elementary theory and technique of statistical methods, with application to typical production, distribution, accounting and general administrative problems of business organizations. Prerequisites: Economics 1a and registration in the School of Commerce, or consent of instructor. Lab. fee $1.50. Lecture 2:30 Tu; 4 hours lab. and discussion. Mr. Fox.

132. Statistical Economics. I; 3 cr. Quantitative description and analysis of economic conditions and movements, such as the amount and distribution of income and wealth, business cycles, employment and unemployment, production and trade, productivity, commodity and security price movements, wages, cost of living, savings and capital formation. Prerequisites: A course in statistics and upper-group status or graduate standing. Lab. fee $1.50. Lecture 1:30 MW; lab. 2:30-4:30 M. Mr. Jerome.

196. Advanced Statistical Technique. II; 3 cr. The technique of numerical and graphical analysis, with particular attention to sampling and probability, index numbers, curve fitting, analysis of time series, and measures of relationship, including partial and multiple correlation. Prerequisite: A course in statistics. Lab. fee $1.50. Lecture 1:30 MW; lab. 2:30-4:30 W. or 10-12 S. Mr. Jerome.

230. Seminary in Statistical Research. Yr; 2 cr. Cooperative research in one or more economic problems, each member of the class concentrating on a selected phase of the common subject. Subject for 1938-39: Statistical and economic analysis of selected industries, with special attention to Wisconsin. Reports on current developments in statistical method. Fee $1.00. 7:15-9:15 Th. Mr. Jerome.

See also Mathematics 118, 137 and 238 for courses in the mathematics of statistics.

COMPARATIVE LITERATURE

PHILO MELVIN BUCK, JR., M.A., Litt.D., *Professor of Comparative Literature, Chairman* (on leave I)
WALTER RAYMOND AGARD, B.Litt., *Professor of Greek*
AMERICO CASTRO, Ph.D., Litt.D., *Professor of Spanish and Comparative Literature*
MYLES DILLON, M.A., Ph.D., *Professor of Gaelic and Irish History and Literature*
RICARDO BECKWITH QUINTANA, Ph.D., *Professor of English*
CASIMIR BECKWITH ZDANOWICZ, Ph.D., *Professor of French*
HYMAN CHONON BERKOWITZ, Ph.D., *Associate Professor of Spanish*
PAUL MILTON FULCHER, Ph.D., *Associate Professor of English*
EINAR HAUGEN, Ph.D., *Thompson Professor of Scandinavian Languages* (on leave I)
SAMUEL GREENE ARNOLD ROGERS, M.A., *Associate Professor of French*
JOSEPH LOUIS RUSSO, Ph.D., *Associate Professor of Italian*
ROBERT BELL MICHELL, Ph.D., *Assistant Professor of French*
JOHN PAUL VON GRUENINGEN, Ph.D., *Assistant Professor of German*
HAZEL S. ALBERSON, Ph.D., *Instructor in Comparative Literature*
NEAL FRANK DOUBLEDAY, Ph.D., *Instructor in Comparative Literature*

Courses in Comparative Literature fall into two general classes: those in which the readings are mainly in English translation, and those in which an easy reading knowledge of one or more foreign literatures is required. Undergraduates majoring in the department must be able to do a portion of this work in at least one language other than English. There is also provision for graduate work in Comparative Literature, as outlined in the bulletins of the Graduate School. None of the courses in this department are open to freshmen.

MAJOR. The major in Comparative Literature is planned for those students who may be interested in the critical appreciation of literature or who may have literary ambitions; it will be found to be elastic enough to suit individual needs. The minimum requirements of the major are 46 credits, including the following:

(a) 16 credits in courses in the Department of Comparative Literature, including Course 9 or its equivalent and four or more credits from courses numbered over 100. Course 165 is strongly recommended.

(b) 14 credits in literature (not language or composition) courses in at least two other departments, one of which may be English. Not less than 9 of these credits shall be taken in one foreign language, ancient, or modern. Courses in the language departments below the following numbers are not accepted as part of the major: Latin 16, Greek 7 or 10, English 34, French 21, German 31, Spanish 21, Italian 20, Scandinavian 21. For other literatures consult the chairman of the Department of Comparative Literature.

(c) 12 credits in related courses in at least two of the following departments: art history, philosophy, history.

(d) 4 credits earned by independent work the result of which is shown by a thesis or by work in a seminary.

It is further required that the completed work show a degree of continuity; that is to say, the elections will necessarily be in the same or related

periods of literary history, or will include the same or similar literary types. The exact grouping of courses for a major will be determined individually for each student.

In any of the possible coordinations of his work the Department of Comparative Literature asks the student to plan his studies so that in his senior year he can do a piece of original work in which the results of this survey of a period or related periods will be manifest. The student if he has the ability may register for such original work. The proseminary 181 is specially designed for this purpose.

9. World Literature in Translation. Yr; 3 cr. Homer to the 20th century. 9 MW or 9 TT and one additional hour. Mr. Buck and Mrs. Alberson.

67. Contemporary Drama. Yr; 2 cr. Offered 1937-38 and in alternate years. In translation. 2:30 MW. Mr. Rogers.

68. Contemporary Novel. Yr; 2 cr. The English, Continental, and American Novel, 1875-1930, in translation. Offered 1938-39 and in alternate years. 9 TT. Mr. Fulcher.

In the following courses, for majors one foreign language is necessary; for others special arrangements may be made.

100. Thesis. Yr; 2 cr. Students register with the consent of instructor and chairman of department. Mr. Doubleday.

101. Medieval Epic, Romance and Fable. I; 3 cr. A study of these as the literature of entertainment and a reflection of the life and interests of the people. Epic materials as found in the Anglo-Saxon, Norse, French, German, Spanish and Latin and their development in romance. Mrs. Alberson.

102. Renaissance Epic and Romance. II; 3 cr. A study of the epic and related forms, as the romance and pastoral, their development in Latin, Italian, Portuguese and French and their culmination in Ariosto, Tasso, Spenser and Milton. Mrs. Alberson.

103. Renaissance Thought. II; 3 cr. Not offered 1938-39. Mr. Quintana.

143. Cervantes. Yr; 2 cr. Sources, literary value, and influence upon other literatures. Offered 1938-39 and in alternate years. 1:30 TT. Sr. Castro.

165. Literary Criticism. Yr; 3 cr. The search for a critical theory and a study of literary types. Readings in representative critics. 11 TT. Mr. Buck and Mr. Doubleday.

170. Literary Type: Tragedy. I; 3 cr. A critical study. At least one foreign language required. Offered 1937-38 and in alternate years. 11 MW. Mr. Buck.

176. The Romantic Movement in France, Germany, and England. II; 3 cr. From Rousseau to Goethe and Chateaubriand. Ability to read German or French necessary. Offered 1938-39 and in alternate years. Mr. Buck.

177. Renaissance Satire. I; 3 cr. Not offered 1938-39. Mr. Quintana.

178. The Contemporary Scene. I; 3 cr. A study of the literary movements in Europe and America since the Great War. Offered in 1938-39 and in

alternate years. Ability to read at least one foreign language required. 11 MW.

180. Special Readings. Yr; *cr. Individual studies in selected fields for exceptional students under the direction of the instructor. Students must consult the chairman before registering. See section 20, page 66.

181. Proseminary. Yr; 2 cr. Individual studies for seniors and other qualified students. Prerequisite: Consent of instructor. Mr. Doubleday.

193. Baroque Literature in Europe. Yr; 2 cr. The European man between the Renaissance and Neo-Classicism. Offered 1939-40 and in alternate years. Sr. Castro.

201. Seminary, Literary Criticism in Ancient Greece and Rome. Yr; 2-3 cr. Mr. Buck.

The following courses, 41-133, dealing with the literatures of Greece, Rome, Ireland, Italy, Spain, German, Scandinavia and France in translation are for students not having the foreign language and who wish to acquaint themselves with the best in their literatures. As such they are recommended most highly. They do not carry credit toward a major in Comparative Literature.

41. Greek Life and Literature. (See Classics 41.)

42. Roman Life and Literature. (See Classics 42.)

50. French Masterpieces in Translation. Yr; 2 cr. Prerequisite: Sophomore standing. No language required. 10 TT. Mr. Michell.

51. Classical Mythology. (See Latin 51.)

53. Italian Masterpieces in Translation. Yr; 2 cr. Lectures, class discussions, assigned readings. The first semester is devoted to Dante, Petrarch, and Boccaccio; the second semester begins with the Renaissance authors and ends with Pirandello. No language prerequisite. 10 TT. Mr. Russo.

55. Spanish and Portuguese Masterpieces in Translation. Yr; 2 cr. A review of the significant traits of Hispanic literature, and of their relationship to other literatures, from the origin up to the present time, illustrated with selected representative masterpieces. Lectures, class discussions, and supplementary readings. No language prerequisite. 11 TT. Mr. Berkowitz.

72. Scandinavian Mythology and Folklore. (See Scandinavian Language 72.)

75. German Classics in Translation. Yr; 2 cr. A study of selected masterpieces of German literature, taken up entirely in English. Lectures, assigned readings, discussions, and topics. The first semester begins with the *Nibelungenlied* and ends with Schiller; the second semester begins with Goethe and comes down to modern times. Offered 1938-39 and in alternate years. Mr. von Grueningen.

133. Introduction to the Studies of Irish History and Literature in Translation. Yr; 2 cr. 3:30-5:30 Th. Mr. Dillon.

COMPARATIVE PHILOLOGY

W. Freeman Twaddell, Ph.D., *Professor of German, Chairman*
Americo Castro, Ph.D., Litt.D., *Professor of Spanish and Comparative Literature*
Myles Dillon, Ph.D., *Professor of Gaelic and Irish History and Literature*
Arthur Gordon Laird, Ph.D., *Professor of Greek*
William Ellery Leonard, Ph.D., *Professor of English*
Miles Lawrence Hanley, M.A., *Associate Professor of English*
Einar Ingvald Haugen, Ph.D., *Thompson Professor of Scandinavian Languages* (on leave I)
Roe-Merrill S. Heffner, Ph.D., *Associate Professor of German*
Morris Swadesh, Ph.D., *Assistant Professor of Anthropology and Linguistics*
Selim Maurice Ezben, M.A., *Instructor in French and Italian*

INDO-EUROPEAN

101. Introduction to Comparative Indo-European Linguistics. I; 2 cr. Not offered in 1938-39.

120. Anglo-Saxon. (See English 120.)

121. Middle English. (See English 121.)

123. History of the English Language. (See English 123.)

131. Elementary Old Irish. (See Irish 131.)

140. Elementary Sanskrit. I; 2 cr. Offered in 1938-39 and alternate years. Mr. Dillon.

141. Advanced Sanskrit. II; 2 cr. Offered in 1938-39 and alternate years. Mr. Dillon.

150. History of the German Language. (See German 150.)

151. Elementary Middle High German. (See German 151.)

154. Gothic. (See German 154.)

155. Old High German. (See German 155.)

158. Old Saxon. (See German 158.)

163. Old Norse. (See Scandinavian Languages 163.)

164. Introduction to Scandinavian Languages. (See Scandinavian Languages 164.)

170. Introduction to Slavonic Philology: Old Church Slavonic. II; 2 cr. Not offered in 1938-39.

171. Russian. Yr; 2 cr. Not offered in 1938-39.

172. Introduction to Baltic Philology: Lithuanian. I; 2 cr. Offered in 1938-39.

185. Introduction to Phonetics. (See English 185.)

205. Introduction to Medieval Welsh. (See Irish 205.)

208. Introduction to the Comparative Grammar of the Celtic Languages. (See Irish 208.)

225. Latin Sounds and Forms. (See Latin 225.)

226. Greek Sounds and Forms. (See Greek 226.)

227. History of the English Language. (See English 227.)

250. Seminary: Comparative Indo-European Linguistics. Yr; 2 cr. The work of the seminary varies from year to year according to the needs of the students. 1938-39: Sanskrit. Mr. Dillon.

261. Historical Grammar of the German Language. (See German 261.)

269. Philological Proseminary. II; 1938-39: Introduction to Germanics. (See German 269.)

ROMANCE PHILOLOGY

273. Romance Philology. Yr; 2 cr. Offered 1939-40. Sr. Castro.

SEMITIC LANGUAGES

51. Introduction to Classical Arabic. Yr; 2 cr. Mr. Ezban.

AMERICAN INDIAN LANGUAGES

(See Department of Sociology and Anthropology.)

For other courses in linguistics see French 141, 240, 244; Italian 171; Spanish 141, 210.

DRAWING

Herbert Denny Orth, B.S., *Associate Professor of Drawing and Descriptive Geometry, Chairman*
Adam Vause Millar, M.S., *Professor of Drawing and Descriptive Geometry*
Joseph Dow Livermore, B.S., *Assistant Professor of Drawing and Descriptive Geometry*
Kenneth Grinnell Shiels, M.S., *Assistant Professor of Drawing and Descriptive Geometry*
Howard Bailey Doke, *Instructor in Drawing and Descriptive Geometry*
Fuller Orville Griffith, B.S., *Instructor in Drawing and Descriptive Geometry*
Joseph John Peot, B.S., *Instructor in Drawing and Descriptive Geometry*
Gordon Jerome Strewler, B.S., *Instructor in Drawing and Descriptive Geometry*
Robert Rockwood Worsencroft, B.S., *Instructor in Drawing and Descriptive Geometry*

These courses are offered by the Department of Drawing and Descriptive Geometry in the College of Engineering. They may be taken for credit by students in the College of Letters and Science without special permission of the dean. See Art Education, page 109, for freehand drawing courses.

1. Elements of Drawing. I, II; 3 cr. Working drawings, third-angle projection, lettering, tracing, and blueprinting. Open to freshmen. Two sections especially adapted to non-engineering students. 10-12 MWF and 10-12 TTS. Lab. fee $1.00. Mr. Orth and staff.

2. ELEMENTS OF DRAWING. I, II; 3 cr. Working drawings, lettering, sketching, isometric, and cabinet drawing. Prerequisite: Drawing 1. Lab. fee $1.00. Mr. Orth and staff.

3. DESCRIPTIVE GEOMETRY. I, II; 3 cr. Fundamental theory of point, line, and plane, with application to solids. Generation and classification of lines and surfaces; tangent planes; sections, intersections, and developments. Prerequisite: Drawing 2. Mr. Millar and staff.

ECONOMICS

EDWIN EMIL WITTE, Ph.D., *Professor of Economics, Chairman*
MARTIN GUSTAV GLAESER, Ph.D., *Professor of Economics and Commerce*
HAROLD MARTIN GROVES, Ph.D., *Professor of Economics*
BENJAMIN HORACE HIBBARD, Ph.D., *Professor of Agricultural Economics*
ASHER HOBSON, Ph.D., *Professor of Agricultural Economics*
HARRY JEROME, Ph.D., *Professor of Economics and Commerce*
CHESTER LLOYD JONES, Ph.D., *Professor of Commerce and Political Science*
WILLIAM HENRY KIEKHOFER, Ph.D., LL.D., *Professor of Economics*
DON DIVANCE LESCOHIER, Ph.D., *Professor of Economics*
PRESTON ESSEX MCNALL, Ph.D., *Professor of Agricultural Economics*
HILARY ADAIR MARQUAND, M.A., *Visiting Professor of Economics*
WALTER ALBERT MORTON, Ph.D., *Professor of Economics*
SELIG PERLMAN, Ph.D., *Professor of Economics* (on leave 1938-39)
WILLIAM BAYARD TAYLOR, Ph.D., *Professor of Finance*
HENRY ROSCOE TRUMBOWER, Ph.D., *Professor of Commerce and Economics*
GEORGE SIMON WEHRWEIN, Ph.D., *Professor of Agricultural Economics*
DON SHERMAN ANDERSON, B.S., *Associate Professor of Agricultural Economics*
HENRY HARRISON BAKKEN, M.A., *Associate Professor of Agricultural Economics*
RUDOLPH KNUGAARD FROKER, M.A., *Associate Professor of Agricultural Economics*
WILLIAM PETER MORTENSON, Ph.D., *Associate Professor of Agricultural Economics*
WALTER HENRY EBLING, Ph.D., *Assistant Professor of Agricultural Economics*
KENNETH HERALD PARSONS, B.A., *Assistant Professor of Agricultural Economics*
MARVIN ARNOLD SCHAARS, Ph.D., *Assistant Professor of Agricultural Economics*
HENRY RUSSELL BRIGGS, B.A., *Lecturer in Tax Administration*
ELIZABETH BRANDEIS, Ph.D., *Lecturer in Economics*
ALMA LOUISE BRIDGMAN, M.A., *Instructor in Economics, Executive Secretary*
JAMES STAINFORTH EARLEY, M.A., *Instructor in Economics*
DONALD RICHARDS MITCHELL, M.A., *Instructor in Agricultural Economics*

MAJOR

For a major in economics thirty credits are required, including the following: eight credits in Economics 1a and 1b, three credits in Economics 30, and nineteen additional credits. These additional credits shall be selected in conference with the major adviser. Four of the nineteen additional credits may be met by the writing of a thesis, if a student is invited to do so by the faculty in charge of the field of concentration. Students must earn as many grade-points as credits in the work of the major in order to be eligible for graduation.

Theses may be written in any one of the fields designated in Fields II-VIII as described on subsequent pages. A minimum of two related courses in the field selected is required as a background for the thesis. Students not writing theses must, however, offer three courses in any one of the fields of specialization, II-VIII into which the work of the department is divided.

APPLICATION OF ECONOMICS TO SPECIAL COURSES

SCHOOL OF COMMERCE

PROFESSOR F. H. ELWELL, DIRECTOR

The importance of professionally trained men and women for business was recognized in the establishment of the Course in Commerce in 1900. The Course has now become the School of Commerce with work extending over three years, the junior, senior, and first graduate years. See pages 83-89 of this announcement for details.

AGRICULTURAL ECONOMICS

PROFESSOR A. HOBSON IN CHARGE

The courses in agricultural economics are intended to give the student a knowledge of the economic principles which relate to the productibn and marketing of farm products, the utilization of land, and the economic condition of the agricultural classes. For details see pages 140-142 of this announcement.

INDUSTRIAL RELATIONS

PROFESSOR D. D. LESCOHIER IN CHARGE

The Department of Economics has arranged a sequence of courses preparing students for positions as employment managers with business concerns, or for positions as factory inspectors, statisticians, special investigators with state and federal departments concerned with industrial labor, and employment agents in the state and federal employment service.

This statement does not imply a promise that such employment can be obtained for students who take the course.

A list of suggested courses follows:

SOPHOMORE YEAR

First Semester	Credits	Second Semester	Credits
Econ. 1a—General economics	4	Econ. 1b—General economics	4
Psych. 1—Introductory psychology	3	Psych. 1—Introductory psychology (rep.)	3

JUNIOR AND SENIOR YEARS

Econ. 30—Economic statistics	3	Econ. 30—Economic statistics (repeated)	3
Econ. 122—Labor problems	3	Econ. 145—American labor history	3
Econ. 119—Evolution of industry	3	Sociol. 140—Principles of sociology	3
Econ. 120—Social insurance	3	Econ. 144—Capitalism and socialism	3
Econ. 123—Labor legislation	3	Econ. 146—Government and business	3
Pol. Sci. 112—Introduction to constitutional law	3	Econ. 171—Personnel management	3
Econ. 131—Wages and prices	3		
Sociol. 141—Poverty and relief	3		
Econ. 174—The labor market	3		

SPECIAL COURSES

Educ. 183—Job and occupational analysis	2	Educ. 226—Test construction	2
Speech 25—Correction of speech disorders	2	Econ. 121—Property insurance	2
Educ. 225—Test construction	2	Shop work	1-3

SPECIAL COURSES (CONTINUED)

First Semester	Credits	Second Semester	Credits
Shop work	1-3	Econ. 100—Thesis	2
Econ. 100—Thesis in labor legislation, labor problems, labor history, labor market, industrial management	2		

STATE SERVICE TRAINING

PROFESSOR EDWIN E. WITTE IN CHARGE

The Department of Economics maintains close relations with departments of the state government of Wisconsin concerned with the administration of regulatory laws and the performance of collective services of an economic character. Advanced students can select thesis and seminar report subjects in connection with state administration and are encouraged to work on problems in which the state departments are interested. Arrangements can often also be made for something akin to an interneship training in certain state departments for students who are interested in such training in conjunction with advanced work in the Department of Economics.

In 1937-38 the Department and the Industrial Commission of Wisconsin conducted a systematic training program (under the immediate direction of Miss Brandeis) in labor law administration for interested graduate students, which included a very considerable amount of practical work in various divisions of the Industrial Commission. Similar programs will be offered in 1938-39 if the demand warrants.

MUNICIPAL FINANCE AND ADMINISTRATION

PROFESSOR F. H. ELWELL IN CHARGE

A major in Municipal Finance and Administration has been established in the Division of the Social Sciences, and designed for those preparing for positions in municipal and county offices in which specific knowledge of governmental organization, finance and accounting is necessary.

This statement does not imply a promise that such employment can be obtained for students who take this major.

The forty credits required for the major shall include Economics 1a, 1b, 30, Commerce 8, 9, and Political Science 7; and the remaining credits must be selected from the following group of courses listed for the junior and senior years.

SOPHOMORE YEAR

Econ. 1a—General economics	4	Econ. 1b—General economics	4
Com. 8—Elements of accounting	3	Com. 9—Intermediate accounting	4
		Pol. Science 7—American government and politics	3

JUNIOR AND SENIOR YEARS

Econ. 30—Economic statistics	3	Com. 184—Auditing	3
Econ. 103—Public expenditures	2	Com. 187—Governmental accounting	2
Econ. 105—Money and banking	3	Pol. Science 13—Municipal government	2
Econ. 110—Investments	2	Pol. Science 135—Municipal administration	3
Econ. 124—Taxation	3	Pol. Science 143—Introduction to public administration	3
Econ. 137—Corporation finance	3	Education 171—School finance	3
Econ. 142—Public utilities	3	Law—Municipal corporations	2
Econ. 146—Government and business	3		

In addition to the courses described below credit toward an economics major is given for the following courses: Commerce 9, 108, 114, 116, 121, 138, 170, 181, 182, 183, 184, 185, 186, 187, 199, 213. The description of the listed courses will be found under the offerings of the School of Commerce.

COURSES OF INSTRUCTION IN ECONOMICS

I. GENERAL ECONOMICS AND ECONOMIC THEORY

1a. General Economics. I, II; 4 cr. Fundamental economic principles and the problems of modern economic society; production; the modern exchange system; value and price. Prerequisite: Full sophomore standing. I, Lecture, 9 MWF or 1:30 MW, 9 F and one discussion hour; II, Lecture, 11 MWF and one discussion hour. Mr. Kiekhofer and staff.

1b. General Economics. I, II; 4 cr. Distribution, consumption, public finance, economic policies and politics. Prerequisite: Economics 1a. I, Lecture, 11 MWF, one discussion hour; II, Lecture, 9 MWF, one discussion hour. Mr. Kiekhofer and staff.

100. Senior Thesis. Yr; 2 cr.

150. Economic Theory. I, II; 3 cr. Modern equilibrium analysis built around Alfred Marshall's *Principles of Economics*. Scope and method; principles of price and distribution under competitive and imperfectly competitive conditions. Aims to provide understanding of economic life and problems, tools for research and groundwork for advanced work in theory. For graduate students and seniors majoring in economics and commerce. Prerequisite: Economics 1b. 1:30 MWF. Mr. Earley.

173. Economics of Consumption. II; 3 cr. Consumption and the consumer in modern economic society. Forces influencing the direction and level of consumer demand. Relations between consumption, saving, investment and social income and its fluctuations. Efforts to improve position of consumers—governmental, cooperative, research. Prerequisites: Economics 1b or consent of instructor. Mr. Earley.

175. Business Cycle Theories. II; 3 cr. Critical analysis of American and foreign explanations of crises and depressions and of the forces controlling the growth and fluctuations in economic activity. Particular attention to the theoretical analysis of post war economic history. Prerequisites: Senior standing and major in economics or commerce. Fee $1.00. 8 MWF. Mr. Lescohier.

201. Development of Economics. Yr; 2 cr. A critical survey of economic thought from the mercantilists to recent writers. Prerequisites: Economics 1b or equivalent and graduate standing. 10 TT. Mr. Hibbard.

202. Historical and Institutional Economists. I; 3 cr. Development of the types of economic theory which emphasize the historical and institutional approach. Prerequisites: Economics 1b and graduate standing. Mr. Glaeser.

250. Seminary in Economic Theory. Yr; 2 cr. Critical discussion of debatable topics in the field of economic theory, particularly value and distribution, together with the presentation of seminary papers and reports on controversial questions that have been investigated. Prerequisites: Graduate standing and consent of instructor. 7:15-9:15 W. Mr. Kiekhofer.

280. Reading and Research in Economics. Yr; *cr. Both during the regular session and in the inter-session periods individual work suited to the needs of graduate students may be arranged. Prerequisite: Advanced graduate standing. Staff.

See also Econ. 205, listed under IV, Finance, and Econ. 221 and 229, listed under III, Agricultural Economics.

II. ECONOMIC HISTORY AND INSTITUTIONS

19. Economic History of the United States. II; 3 cr. Development of agriculture, industry, commerce, and transportation from colonial times to the present. Growth in size and complexity of economic and business units. Problems raised by economic evolution in the United States. Prerequisite: Economics 1a. 11 MFq. Miss Brandeis.

43. Business Ethics. I, II; 2 cr. The rules of fair competition. Standards of fair service. Fair price, fair wage, and the justice of the present system of distributing wealth. Prerequisite: Sophomore standing. 9, 10, 11, or 1:30 TT. Mr. Fox, Mr. Kubly.

119. Evolution of Industry. I; 3 cr. The development of industrial society viewed in its technological, marketing, and institutional aspects. A consideration of the several theories of industrial evolution. Prerequisites: Economics 1a and junior standing. 2:30 TTq. Not offered 1938-39. Mr. Perlman.

146. Government and Business. I; 3 cr. General survey of governmental activities affecting business; the state as an entrepreneurial manager, governmental assistance to business; governmental regulation of business in its historical, legal and economic aspects, including recent developments in the United States and abroad; proposed policies. Prerequisite: Economics 1b or consent of instructor. Fee $1.50. 9 TTq. Mr. Witte.

148. British Economic Problems I; 3 cr. Depressed areas and new industries; government regulation of coal industry; problem of taxation; relief and unemployment assistance. Prerequisites: Economics 1a and junior standing. 2:30 MWF. Offered in 1938-39 only. Mr. Marquand.

158. Industrial Concentration. II; 3 cr. Monopolistic combinations in England, Germany, and the United States. Prerequisites: Economics 1a and junior standing. Offered in 1938-39 only. 2:30 MWF. Mr. Marquand.

218. Economic Institutions. I; 3 cr. Historical development of the institutional organization of economic society. Discussion of specific works which illustrate the institutional method of treating economic problems. Special attention is given to bearing of constitutional law upon the changing structure of economic society. 3:30-5:30 M. Not offered 1938-39. Mr. Glaeser.

220. Wisconsin Economic Problems. Yr; 2 cr. Current economic problems of this state, including both problems of immediate interest to state departments and legislative committees and those confronting Wisconsin industries. Prerequisites: Graduate standing or senior standing and consent of instructor. Mr. Witte.

III. AGRICULTURAL ECONOMICS

117. Outlines of Land Economics. I; 3 cr. Economic principles underlying the utilization and conservation of land or natural resources and the ap-

plication of these principles to agricultural, forest, recreational, and urban land, and to water, power, and mineral resources. Prerequisite: Economics 1a. 9 MWF. Mr. Wehrwein.

126. International Trade in Agricultural Products. I; 3 cr. Review of theories of international trade and foreign exchange; history of foreign trade in agricultural products; analysis of agricultural imports and exports; agricultural price supporting measures; current international trade problems in their relation to American agriculture. Prerequisite: Economics 1a. 1:30 MWF. Mr. Schaars.

127. Cooperative Marketing. II; 3 cr. An analysis of marketing organizations, methods and theory underlying cooperative and private enterprises. Current agricultural marketing problems together with a consideration of the economic, legal and social aspects of cooperative marketing. Governmental relations and selected phases of the cooperative movement will be considered. Prerequisites: A course in marketing or junior standing and consent of instructor. 11 TTq or 8 TTq. Mr. Bakken.

128. Marketing Agricultural Products. I; 3 cr. Development of agricultural marketing; services, agencies, methods; emphasis on principles and practices; price factors; commodity exchanges; current marketing problems; governmental relations; marketing costs. Prerequisite: Economics 1a. 8 or 10 MWF. Mr. Schaars.

129. Cooperative Management Problems. I; 2 cr. A consideration of the business structure of cooperative associations engaged in commercial activities; problems involving membership relations, pooling, financing, internal control, directors' responsibilities, trade and sales practice, and administrative policies. Prerequisite: Economics 127 or consent of instructor. 3:30-5:30 Tu. Mr. Hobson, Mr. Froker.

152. Farmer Movements. I; 2 cr. History of the efforts of the farmers to better their economic condition by forming general, even nation-wide, organizations designed to control markets and influence legislation in the interest of farmers. Prerequisite: Econ. 1a or concurrent registration or consent of instructor. 8 TT. Mr. Hibbard.

155. Prices of Agricultural Products. II; 3 cr. An analysis and interpretation of the factors affecting the prices of agricultural products, together with a study of price movements, trends, cycles, and minor fluctuations. The inter-relationship of price, demand and supply of various types of agricultural products. Attention given to the interpretation of materials contained in public and private outlook reports. Prerequisite: Agricultural Economics 1 or Economics 1b. 10 MWF. Mr. Mortenson.

179. Urban Land Economics. II; 3 cr. Urbanization and location and structure of cities, urban land utilization, home ownership and tenancy, housing and credit, zoning, city and regional planning. Prerequisite: Economics 1a. 9 MWF. Mr. Wehrwein.

192. Rural-Regional Planning. II; 3 cr. Discussion of the technique and principles of rural-regional planning and zoning, the assembling of basic data underlying a plan for a selected county or region, followed by student reports each covering a segment of the complete project. Open to students majoring in the departments represented by the staff or with the consent of the instructors. Time to be arranged. Mr. Aust, Mr. Kolb, Mr. Wehrwein.

200. RESEARCH. Yr; *cr. Cooperation and marketing, Mr. Hobson, Mr. Bakken, Mr. Froker, and Mr. Schaars. Farm surveys, financial and cost accounts in their relation to farm management, Mr. McNall and Mr. Mitchell. History of agricultural production, Mr. Hibbard. Farmer movements, taxation and farm credit, Mr. Hibbard. Land economics and land problems, Mr. Wehrwein. Agricultural prices and statistics, Mr. Mortenson. International agricultural relations, Mr. Hobson. Crop and livestock estimating and agricultural data, Mr. Anderson and Mr. Ebling.

221. LAND INCOME. II; 3 cr. The characteristics of land as a factor of production, spatial element of land, economics of land utilization, theories of rent, principles of land valuation and taxation. Prerequisite: Graduate standing. Given in 1937-38 and in alternate years. 2:30 MWF. Mr. Wehrwein.

226. SEMINARY IN LAND PROBLEMS. Yr; 2 cr. Land tenure and utilization in the principal countries studied in a two-year cycle; the countries with a feudal heritage; the new countries including the United States. Prerequisites: Economics 117, 229 or concurrent registration. 7:30 p.m. M. Mr. Hibbard, Mr. Wehrwein.

228. SEMINARY IN THEORY OF MARKETS AND MARKETING. II; 2 cr. A study of the historical development of markets from early continental fairs; the practices and customs of auctions, clearing houses, exchanges, and boards of trade; the emergence of modern sales agencies operating under cooperative, private, and governmental initiative. Prerequisite: Graduate standing. Given in 1938-39 and in alternate years. 3:30-5:30 M. Mr. Bakken.

229. ADVANCED AGRICULTURAL ECONOMICS. Yr; 2 cr. The field of agricultural economics with respect to its origin and the main issues around which the thinking of those interested in agriculture revolves. Prerequisite: Graduate standing. 8 MW. Mr. Hibbard.

252. SEMINARY IN INTERNATIONAL AGRICULTURAL RELATIONS. I; 2 cr. An examination of international agricultural organizations and institutions, and their activities, together with an analysis of national agricultural measures and their influences in the international sphere. Prerequisite: Graduate standing or consent of instructor. Given in 1938-39 and in alternate years. 3:30-5:30 Th. Mr. Hobson.

255. SEMINARY IN PRICE ANALYSIS. II; 3 cr. The application of statistical and other research methods involved in isolating and analyzing agricultural price problems. Stress will be placed on proper interpretations. Prerequisite: Economics 130 or equivalent. Given in 1939-40 and in alternate years. 3:30-5:30 Thq. Mr. Mortenson.

IV. FINANCE

103. PUBLIC EXPENDITURES. II; 2 cr. Public expenditures and economic institutions; tax and debt limitations; state and federal aids. Functional analysis of expenditures, such as expenditures for education, highways, etc. Administration of public expenditures; budgets. Public debts. Prerequisite: Economics 124 or consent of instructor. Lab. fee $1.00. 11 TT. Mr. Groves.

105. MONEY AND BANKING. I, II; 3 cr. A study of the basic principles of money, credit and deposit banking. Nature and characteristics and functions of money. The banking structure and operations and banking theory.

Prerequisite: Economics 1a. Lecture 10 TT; one discussion period. Mr. Morton and staff.

110. INVESTMENTS. I, II; 2 cr. Private and social implications of the demand for, supply of, and yield on capital funds. Principles of analysis applicable to the broader classifications of securities—government, public utility, real estate, industrial. Critique of the current system of security flotation, distribution, and transfer. Sources of investment information. Prerequisite: Economics 137. 3:30 MW. Mr. Taylor.

124. TAXATION. I, II; 3 cr. Specific taxes which make up the national, state, and local systems with special emphasis upon the practical social problems involved. Prerequisite: Economics 1b. Lab. fee $1.00. 8 TTq. Mr. Groves.

133. FINANCIAL HISTORY OF THE UNITED STATES. I; 3 cr. The development of monetary and financial institutions and practices from colonial times to the present. Federal, state and municipal finance. Tariff legislation and its financial implications. Financial aspects of economic development. War finance. International financial relations. Prerequisite: Junior standing. (Given alternately with 154. Offered 1938-39.) 10 MWF. Mr. Morton.

137. CORPORATION FINANCE. I, II; 3 cr. The economic significance of the corporate unit in present-day enterprise; its organization, management, and control. The financial relationships of proprietorship and creditorship, management and ownership during normal and abnormal periods of business activity. Obtaining and administering working and fixed capital; the determination of income and its management. The purpose and procedure of financial reorganization. Prerequisite: Economics 1a. Lecture 9 TT; one discussion period. Mr. Taylor.

151. LATIN AMERICA. I; 3 cr. The economic development and foreign trade of Latin America, with emphasis on the stabler republics. The outlook for increased foreign trade and investment. Prerequisite: Economics 1a or junior standing. 11 MWF. Mr. Lloyd Jones.

153. INTERNATIONAL FINANCE. II; 2 cr. International economic interdependence. International balance of payments. Foreign exchange. International gold standard: conditions, advantages, difficulties, future. Managed currencies in their international aspects. Short and long-term movements of capital. Principles and problems in the payment of international private and public debts. Stabilization of exchange rates. Policy of financial penetration and its economic and political consequences. Prerequisite: Economics 1b. 3:30-5:15 Th. Mr. Kiekhofer.

154. RISK AND PROFIT. I; 3 cr. Nature and sources of risk and profit in business and industry; the price system, its functions and defects; financial aspects of business cycles; business forecasting; the stock market. Prerequisite: Economics 105. (Given alternately with Econ. 133. Not given 1938-39.) 10 MWF. Mr. Morton.

156. INTERNATIONAL TRADE. II; 3 cr. A general course in foreign trade and foreign trade policy with special reference to the United States. Prerequisite: Economics 1a or junior standing. 11 MWF. Mr. Lloyd Jones.

191. THE CREDIT SYSTEM. II; 3 cr. National and international aspects of central banking. Balance of international payments, rates of exchange and international equilibrium. Functions of central banks and the nature

and objectives of credit policy. Monetary economics including monetary standards, the value of money, monetary equilibrium, employment, output and prices. Monetary policy and public finance. Prerequisite: Economics 105. 10 MWF. Mr. Morton.

205. BANKING AND MONETARY THEORY. Yr; 2 cr. Survey of the history of the theories of money, and of banking policy. Analysis of the relation between monetary policy and production, prices, capital formation, and economic activity. Central and commercial banking policies in relation to business and government. The meaning and significance of liquidity, solvency, the gold standard, managed currency, stability, inflation and deflation. Prerequisites: A course in money and banking, a course in economic theory, and graduate standing. 11 TT. Mr. Morton.

224. SEMINARY IN PUBLIC FINANCE. Yr; 2 cr. Alternating annually: 1. Legal problems in public finance. 2. Comparative tax systems. 3. Tax literature and tax theory (1938-39). Prerequisite: Economics 124 or consent of instructor. 7-9 p.m. Tu. Mr. Groves.

237. SEMINARY IN FINANCE. Yr; 2 cr. Comprehensive and intensive consideration of selected problems of current and permanent import in financial administration. Individual research, class reports and group discussion. Prerequisite: Consent of instructor. 7-9 p.m. M. Mr. Taylor.

251. SEMINARY IN LATIN AMERICAN DEVELOPMENT AND TRADE. Yr; 2 cr. Economic and political developments in Latin America. Foreign investments. Foreign trade. Mr. Lloyd Jones.

253. SEMINARY IN INTERNATIONAL FINANCE. II; 2 cr. Cooperative study of some leading topic in the field of international finance for any given year such as: the gold standard and managed currency in their international aspects; recovery programs and progress in leading nations; stabilization of international exchange rates. Prerequisites: Training in finance and consent of instructor. Open on same terms to senior majors with upper-group status. 3:30-5:15 Th. Mr. Kiekhofer.

V. INSURANCE

121. PROPERTY INSURANCE. II; 2 cr. Economic services, contracts, benefits, and premiums in the fields of fire, use and occupancy, marine, automobile, credit, surety and fidelity, public liability, title, and other miscellaneous forms of insurance underwriting. Prerequisite: Economics 139.

138. LIFE INSURANCE. I; 2 cr. Mortality tables, premium rates, reserves, policy forms, investments, legal principles, and state supervision in the field of life underwriting. Prerequisite: Economics 139.

139. PRINCIPLES OF INSURANCE. I; 3 cr. An introductory course designed (1) to precede advanced work in insurance and prerequisite thereto, and (2) to acquaint the non-specialist with the economic and social services of the institution of insurance; risk and risk-bearing, carriers and contracts, rates and reserves, carrier organization and management, the purchase of insurance, state regulation and operation. Prerequisite: Economics 1a.

140. PROBLEMS IN INSURANCE. Yr; 2 cr. Problems chosen from the several fields of insurance and involving the application of the basic principles studied in other courses; individual investigation, class reports and discussions. Prerequisites: Economics 139 and 121 or 138.

See also Econ. 120, Social Insurance, listed under VI, LABOR, and Econ. 154, Risk and Profit, listed under IV, FINANCE.

VI. LABOR

120. Social Insurance. II; 2 or 3 cr. American and European experience with measures designed to increase economic security: old age pensions, health insurance, unemployment insurance, mothers' pensions, etc. Current programs for new national and state legislation. Prerequisite: Economics 1b or consent of instructor. 2:30 MWq. Mr. Witte.

122. Labor Problems. I; 3 cr. A comparison of the typical psychologies of the business group and of the labor groups. Special emphasis on British labor problems. Types of unionism. The structure and policies of unionism. "Welfare capitalism" and unionism. Prerequisites: Economics 1a and junior standing. Lab. fee $1.00. 10 MW; one discussion period. Mr. Marquand.

123. Labor Legislation. I; 3 cr. State activity in relation to labor; legal status of trade unions; operation of protective legislation dealing with wages, hours, child labor, old age benefits, accident and unemployment compensation. Special reference to Wisconsin statutes and their administration. Prerequisite: Economics 1b or consent of instructor. 11 MFq. Miss Brandeis.

131. Wages and Prices. I; 3 cr. Analysis of wage and cost of living trends, and forces governing wages in this and foreign countries. Various theories of wages tested with actual wage facts. Prerequisites: Senior standing, economics or commerce major. (Given alternately with Economics 174. Given 1938-39.) Fee $1.00. 8 MWF. Mr. Lescohier.

144. Capitalism and Socialism. II; 3 cr. Capitalism, unionism, socialism, fascism, and individualistic anti-capitalism, each viewed under the headings of conditions, theories, and movements. Prerequisites: Economics 1a and senior standing. 2:30 MWq. Not offered 1938-39. Mr. Perlman.

145. American and British Labor History. II; 3 cr. The American and British labor movements viewed as historical experiments with the temper of their respective communities, the country's political and legal institutions, and the psychology of labor itself. Prerequisites: Economics 1a and junior standing. 10 MWF. Mr. Marquand.

149. Government and Labor. Yr; 2 cr. Current developments and research problems in industrial relations, social insurance and labor legislation. A pre-seminar course for advanced students in labor. Prerequisites: Graduate or senior standing, at least one other course in labor and consent of instructor. 10 TT. Mr. Witte.

171. Personnel Management. I, II; 3 cr. Study of the handling of labor relations by industrial and commercial concerns. Industrial government, employment management, scientific management, wage policies, accident prevention, industrial hygiene, profit-sharing, pensions and similar topics. Prerequisite: Economics 1a or a major in industrial education or engineering. 11 TTq. Mr. Lescohier.

174. The Labor Market. I; 3 cr. An analysis of problems centering around employment and unemployment, business cycles, seasons, technological evolution, basic changes in industrial structure, relief and prevention of unemployment, unemployment insurance. Prerequisite: Economics 1a. 11 TT; one discussion period. (Given alternately with Econ. 131. Not given 1938-39.) Mr. Lescohier.

222. SEMINARY IN LABOR AND INDUSTRY. Yr; 2 cr. A research seminary in the problems of organized labor in industry. 3:30-5:30 W. Mr. Marquand.

274. SEMINARY IN BUSINESS CYCLES AND UNEMPLOYMENT. Yr; 2 cr. 3:30-5:30 W. Mr. Lescohier.

VII. PUBLIC UTILITIES

135. RAILWAY TRANSPORTATION. I; 2-3 cr. History and development of railway transportation and regulation in the United States. Prerequisite: Economics 1a. 11 MWF. Mr. Trumbower.

136. TRANSPORTATION PROBLEMS. II; 3 cr. Survey and analysis of present-day problems relating to railway transportation, the operation of highway carriers, development of waterways, and air transport. Prerequisite: Economics 1a. 2:30 MTW. Mr. Trumbower.

142. PUBLIC UTILITIES. I, II; 3 cr. The development of public utilities in the United States. Financial and corporate structure. Legal basis of public utility regulation. Development of regulatory agencies—franchises, administrative commissions, contractual arrangements. Valuation, depreciation, security issues and rates of return. Public ownership. Prerequisite: Economics 1a. Lecture 8 MF; one discussion period. Mr. Glaeser.

168. HIGHWAY TRANSPORTATION. I; 3 cr. Economic aspects of highway development, financing of highway construction, supervision of motor vehicle traffic, and regulation of highway common carriers. Prerequisite: Economics 1a. 2:30 MTW. Mr. Trumbower.

189. RAILWAY RATES AND TRAFFIC. II; 2-3 cr. Freight rate structure, adjustment of rates by the Interstate Commerce Commission, traffic control and management. Prerequisite: Economics 1a. 11 MWF. Mr. Trumbower.

195. PUBLIC UTILITY MANAGEMENT. I; 3 cr. Survey of management problems of local utilities; accounting and statistical controls; economics of regulated monopoly price, cost analysis and differential rates; service and labor problems; standards of operating efficiency. Prerequisite: Economics 142. 1:30 M, 3:30-5:30 Tu. Mr. Glaeser.

266. SEMINARY IN PUBLIC UTILITIES. Yr; 2 cr. Research investigations in the field of local public utilities and transportation. Prerequisite: Graduate standing or senior standing with consent of instructor. 3:30-5:30 W. Mr. Glaeser, Mr. Trumbower.

VIII. STATISTICS

30. ECONOMICS STATISTICS. I, II; 3 cr. Sources of statistical data, tabulation, charting, averages, dispersion, sampling and probability, index numbers, trends, seasonal variation, economic cycles, correlation. Prerequisites: Economics 1a and major in economics or consent of instructor. Lab. fee $1.50. Lecture, 9 TT; 3 hours lab. and discussion. Mr. Jerome and staff.

130. STATISTICAL METHODS. I; 3 cr. The elementary principles and technique of the quantitative method in the analysis of economic phenomena:

the collection, tabulation, charting, and numerical analysis of statistical data. Prerequisite: Graduate standing. Lab. fee $1.50. Lecture 9 TT; lab. and discussion 9-12 S. Mr. Jerome.

132. STATISTICAL ECONOMICS. I; 3 cr. Quantitative description and analysis of economic conditions and movements, such as the amount and distribution of income and wealth, business cycles, employment and unemployment, production and trade, productivity, commodity and security price movements, wages, cost of living, savings and capital formation. Prerequisites: A course in statistics and upper-group status or graduate standing. Lab. fee $1.50. Lecture 1:30 MW; lab. 2:30-4:30 M. Mr. Jerome.

196. ADVANCED STATISTICAL TECHNIQUE. II; 3 cr. The technique of numerical and graphical analysis, with particular attention to sampling and probability, index numbers, curve fitting, analysis of time series, and measures of relationship, including partial and multiple correlation. Prerequisite: A course in statistics. Lab. fee $1.50. Lecture 1:30 MW; lab. 2:30-4:30 W or 10-12 S. Mr. Jerome.

230. SEMINARY IN STATISTICAL RESEARCH. Yr; 2 cr. Cooperative research in one or more economic problems, each member of the class concentrating on a selected phase of the common subject. Subject for 1938-39: statistical and economic analysis of selected industries, with special attention to Wisconsin. Reports on current developments in statistical method. Fee $1.00. 7:15-9:15 Th. Mr. Jerome.

See also Mathematics 118, 137 and 238 for courses in the mathematics of statistics.

EDUCATION

C. J. ANDERSON, Ph.M., *Professor of Education, Chairman*
ARVIL SYLVESTER BARR, Ph.D., *Professor of Education*
MATTHEW H. WILLING, Ph.D., *Professor of Education*
KAI JENSEN, Ph.D., *Associate Professor of Education*
CLARENCE EDWIN RAGSDALE, Ph.D., *Associate Professor of Education*
THEODORE L. TORGERSON, Ph.D., *Associate Professor of Education*
J. MURRAY LEE, Ph.D., *Assistant Professor of Education*

This is a duplicate listing of the courses offered by the Department of Education and Educational Psychology in the School of Education which are open to juniors and seniors in Letters and Science. Other courses in these departments may be elected under the provisions of section 16, page 63.

31. PRINCIPLES OF SECONDARY EDUCATION. I, II; 3 cr. Historical development of American secondary schools, present magnitude, European comparisons, modern objectives, curriculum reorganization, professionalization of teachers. Prerequisite: Junior standing. 9 and 1:30 MWF. Fee $.25 Mr. Lee.

101. HISTORY OF MODERN EUROPEAN EDUCATION. I; 3 cr. Educational development in Western Europe from the Renaissance to the World War. 10 MWF. Mr. Willing.

102. HISTORY OF ANCIENT AND MEDIEVAL EDUCATION. II; 3 cr. Not offered 1938-39. Mr. Willing.

103. HISTORY OF AMERICAN EDUCATION. II; 3 cr. 10 MWF. Mr. Willing.

112. Social Development and Education. I, II; 2 or 3 cr. The social development of school children; methods of studying social development; the social characteristics of different age levels; the foundations of social behavior; social development and education. 9 MW; 11 TT, plus individual reading or laboratory. Mr. Barr.

117. Educational Philosophy. II; 3 cr. Critical study of the educational thought of John Dewey. 2:30 MWF. Mr. Willing.

128. Binet Testing. II; 3 cr. Lectures 1:30 MWF. Mr. Torgerson.

EDUCATIONAL PSYCHOLOGY

19. Introduction to Child Development. I, II; 3 cr. A study of heredity, pre-natal development, the new-born infant, the significance of early behavior patterns, nutrition, learning, motivation, language, growth of meanings, behavior problems and discipline, intelligence, personality, and mental hygiene in childhood. Prerequisite: Sophomore standing. 9 MWF. Mr. Jensen.

41. Educational Psychology. I; 3 cr. An elementary survey of the field of psychology with emphasis upon school problems. Not offered 1938-39. Mr. Ragsdale.

107. Psychology of Motor Learning. Yr; 3 cr. The psychology of physical and manual skill; the motor characteristics of the different age levels; the psychology of rhythm; the function of motor behavior in intellectual and social growth; laboratory study of motor learning. Prerequisite: Psychology 1, or Education 41, or Education 75. Lab. fee $1.50. Lecture 8 MW; lab. 9 MW; 1:30 TT. Mr. Ragsdale.

109. Modern Systems of Psychology and Education. II; 3 cr. Conflicting theories of learning, instinct, emotion, mental inheritance and mental organization with special reference to their effects upon educational theory and practice. The educational consequences of behaviorism, purposivism, psychoanalysis and Gestalt. Prerequisite: Psychology 1, or Education 41, or Education 75. 10 MWF. Mr. Ragsdale.

119. Child Development. I; 3 cr. An advanced course dealing with the behavior and development of children up to the adolescent period. Throughout especial attention will be paid to recent experimental findings and critical evaluation of methods and interpretations. (Not open to students who have had, or are taking Psychology 147.) Fee $.50. 11 MWF. Mr. Jensen.

120. Child Development: The Psychology of Adolescence. II; 3 cr. Physical, physiological, social, and mental changes which characterize the transition from childhood to adult life, the underlying causes, and the extent to which these changes are predictable and controllable. Recent experimentation and theories dealing with the adolescent will be critically appraised and the implications for development and education considered. (Not open to students who have taken Educational Psychology 118.) 11 MWF. Mr. Jensen.

123. Psychology and Training of the Pre-School Child. I, II; 2-3 cr. A study of the development and education of children from infancy through the fifth year. Emphasis is placed on practical considerations. 2:30-4:30 Th. Mr. Jensen.

ENGLISH

MERRITT YERKES HUGHES, Ph.D., *Professor of English, Chairman*
ARTHUR BEATTY, Ph.D., *Professor of English*
HARRY HAYDEN CLARK, M.A., *Professor of English*
WILLIAM ELLERY LEONARD, Ph.D., *Professor of English*
HENRY AUGUST POCHMANN, Ph.D., *Professor of English*
RICARDO BECKWITH QUINTANA, Ph.D., *Professor of English*
FREDERICK WILLIAM ROE, Ph.D., Litt.D., *Professor of English*
WARNER TAYLOR, M.A., *Professor of English*
HELEN CONSTANCE WHITE, Ph.D., *Professor of English*
HARRY GLICKSMAN, Ph.D., LL.B., *Lecturer in English*
PAUL MILTON FULCHER, Ph.D., *Associate Professor of English*
MILES LAWRENCE HANLEY, M.A., *Associate Professor of English*
ETHEL MARGARET THORNBURY, Ph.D., *Associate Professor of English* (on lv. yr.)
RUTH COONS WALLERSTEIN, Ph.D., *Associate Professor of English*
MARK ECCLES, Ph.D., *Assistant Professor of English*
CHARLES WRIGHT THOMAS, Ph.D., *Assistant Professor of English*
JULIA GRACE WALES, Ph.D., *Assistant Professor of English*

INSTRUCTORS

MORTON W. BLOOMFIELD, Ph.D.
CURTIS BRADFORD, Ph.D.
STUART GERRY BROWN, Ph.D.
SAMUEL CHEW, Ph.D.
MADELINE DORAN, Ph.D.
NEAL DOUBLEDAY, Ph.D.
DAVID ERDMAN, Ph.D.
PHILIP GRAY, Ph.D.
MARJORIE KIMMERLE, Ph.D.
JOHN PICK, Ph.D.
DAVID SHELDON, Ph.D.
CLAUDE SIMPSON, Ph.D.
WALLACE STEGNER, Ph.D.
MACKLIN THOMAS, Ph.D.
HOYT TROWBRIDGE, Ph.D.
VINCENT WALL, Ph.D.
OLIVER M. WILLARD, Ph.D.
CHARLOTTE ROBERTSON WOOD, M.A.

MAJOR. A minimum of 34 credits including (a) freshman English; (b) one, and only one, of the following: 30, 33; (c) one, and only one of the following: 37, 136, 137; (d) two of the following, including either Chaucer or Milton: 31, 57, 131, 157, 160, 161, 162; (e) not more than two of the following (one will suffice): 34, 35, 40; (f) a thesis or its equivalent.

The thesis, written in the senior year, is required of all students whose grades in English courses taken at the University of Wisconsin average B. Students of a lower grade must substitute four credits in courses of the one-hundred group, not including courses taken in fulfillment of requirements (c) and (d) above. No senior transfer may write a thesis unless his record at the institution from which he transfers convinces the chairman of the department that he has the requisite capacity.

Students intending to choose English as their major study are urged to complete the introductory course (30 or 33) not later than the close of the sophomore year. Of these courses, that especially designed for English majors is 30, but the other will be accepted. Prospective majors should have done better than average work in their preliminary courses in English and in foreign languages. Students entering with advanced standing are required to earn 15 credits in English in advanced courses in residence at the University of Wisconsin.

HONORS. Students reading for honors in English will enter upon their work in the first semester of their junior year, under the direction of tutors. They will be expected to devote much of the following summer to assigned general

reading and will continue the work through the senior year. Prerequisite: An average of 2.5 grade-points per credit for the first four semesters and the written recommendation of three sophomore instructors. Each student will be assigned to a special tutor. For further information consult Professor Fulcher.

TEACHING MAJOR AND MINOR. See School of Education.

1a. FRESHMAN ENGLISH. I, II; 3 cr. Required of freshmen in all colleges. Mr. Taylor and staff.

1b. FRESHMAN ENGLISH. I, II; 3 cr. Continuation of English 1a. Required of all freshmen excepting those who receive a grade of A in English 1a. On the completion of this course, a provisional pass mark is given; if subsequently a student is reported deficient or careless in English composition, he may be required to take additional work in that subject. Mr. Taylor and staff.

2. INTERMEDIATE COMPOSITION. I, II; 2 cr. Prerequisite: English 1b. Open to freshmen exempted from freshman English. 2a, description and narration; 2b, exposition. Several sections at various hours. Mr. Simpson and staff.

3. INTERMEDIATE COMPOSITION. Yr; 2 or 3 cr. For freshmen exempted from English 1, who may wish a course in composition and may prefer not to enter English 2. Limited enrollment. 11 TT. Mr. Fulcher.

5. ADVANCED COMPOSITION. Yr; 2 or 3 cr. Prerequisite: Consent of instructor. 10 TT. Miss White.

8. ADVANCED COMPOSITION. Yr; 2 or 3 cr. Prerequisite: Junior standing, 11 TT. Miss Wales.

ENGLISH IN BUSINESS. (See Commerce 6.)

INTRODUCTORY LITERATURE COURSES

Students may fulfill the B.A. requirements of 4-6 credits in literature by taking either of the two courses hereinafter described—30 or 33. Whichever of these courses is once entered upon must be continued for two semesters; that is, a student may not shift from one course to the other. Only one of them may be credited toward a degree. No advanced course in English literature is open to students who have not taken one of these introductory courses.

30. SURVEY OF ENGLISH LITERATURE. Yr; 3 cr. This course, the material in which is arranged in historical sequence, is designed for students who have a special interest in the study of literature, and is recommended to sophomores who contemplate making English their major subject. 8, 10, 11, or 2:30 MWF. (First semester's work repeated in second semester and second semester's work given during first semester, 2:30 MWF.) Open to freshmen exempted from English 1. Mr. Fulcher and staff.

33. INTRODUCTION TO ENGLISH LITERATURE. Yr; 2 cr. This course, the material in which is not taken up in historical order, is primarily a course in the appreciation of literature. It is provided especially for sophomores who are candidates for the general B.A. degree. 9, 10, or 11 TT. (First semester's work repeated in second semester and second semester's work given during first semester, 1:30 TT.) Open to freshmen exempted from English 1. Mr. Beatty and staff.

ENGLISH LANGUAGE AND LITERATURE

34. The Romantic Movement. I; 3 cr. 9 MWF. Mr. Roe.

35. The Victorian Era. II; 3 cr. 9 MWF. Mr. Roe.

37. Shakespearean Drama. Yr; 3 cr. Open to juniors. A broad course for undergraduates. 11 MWF. Mr. Beatty.

39. The English Novel. Yr; 2 cr. Richardson to Meredith. Offered 1937-38 and in alternate years. 9 TT. Mr. Fulcher.

40. American Literature. Yr; 2 cr. A general survey. This course should be preceded or accompanied by English 30 or 33. 10 TT. (First semester's work repeated in second semester and second semester's work given during the first semester, 9 TT.) Mr. Clark.

48. Literary Aspects of the English Bible. I; 3 cr. 9 TTq. Miss Wales.

57. Milton. II; 3 cr. Not offered 1938-39. 10 MWF. Mr. Quintana.

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

100. Senior Thesis. Yr; 2 cr.

104. Hardy and Meredith. I; 2 cr. Not offered 1938-39. 1:30 TT. Miss Thornbury.

105. British Drama 1660-1825. I; 3 cr. Not offered 1938-39. 1:30 MWF. Miss Thornbury.

106. British Drama 1825-1938. II; 3 cr. Not offered 1938-39. 1:30 MWF. Miss Thornbury.

114. Emerson and Poe. II; 3 cr. Not offered 1938-39. 11 TTq. Mr. Pochmann.

115. Burns. I; 3 cr. Not offered 1938-39. 10 MWF. Mr. Leonard.

116. English Literary Criticism of the Romantic Era. I; 3 cr. 2:30 MWF. Mr. Roe.

117. English Literary Criticism of the Victorian Era. II; 3 cr. 2:30 MWF. Mr. Roe.

120. Anglo-Saxon. I; 3 cr. 9 MWF. Mr. Hanley.

121. Middle English. II; 3 cr. 10 MWF. Mr. Hanley.

122. Beowulf. II; 3 cr. 10 MWF. Mr. Leonard.

123. History of the English Language. II; 3 cr. Should be taken in the junior year by candidates for the teachers' certificate. 2:30 MWF. Mr. Hanley.

124. English Language and Literature for Teachers. I; 3 cr. Open only to majors in the School of Education, who may take either English 123 or 124. 1:30 MWF. Mr. Pooley.

125. Contemporaries and Immediate Successors of Chaucer. I; 3 cr. 11 MWF. Mr. Leonard.

127. CONTEMPORARY POETRY. II; 3 cr. 10 MWF. Mr. Fulcher.

129. SWIFT AND HIS CONTEMPORARIES. I; 3 cr. Considerable attention is given to English thought in the seventeenth century as it bears upon Swift. 11 MWF. Mr. Quintana.

131. CHAUCER. I; 3 cr. 10 MWF. Mr. Hanley.

134. SHELLEY AND KEATS. II; 3 cr. Not offered 1938-39. 7:30-9:30 Mq. Mr. C. W. Thomas.

136. ELIZABETHAN DRAMA INCLUDING SHAKESPEARE. Yr; 3 cr. In this course nearly all of the plays of Shakespeare are read, with representative plays by important contemporaries. 11 MWF. Mr. Eccles.

137. SHAKESPEARE. Yr; 3 cr. In this course about half the plays of Shakespeare are read, four of them being studied in minute detail. Prerequisite: Senior standing. 11 MWF. Miss White.

138. ENGLISH PROSE STYLE. Yr; 2 cr. Offered 1938-39 and in alternate years. 10 TT. Mr. Taylor.

140. SPOKESMEN OF AMERICAN IDEALS. I; 3 cr. 2:30 MWF. Mr. Clark.

141. TENNYSON. I; 3 cr. 10 MWF. Mr. Beatty.

143. FAMILIAR ESSAY. I; 2 cr. Offered 1937-38 and in alternate years. 10 TT. Mr. Taylor.

144. WORDSWORTH. I; 3 cr. 9 MWF. Mr. Beatty.

145. BROWNING. II; 3 cr. 9 MWF. Mr. Beatty.

147. ENGLISH ESSAYISTS. II; 2 cr. Offered 1937-38 and in alternate years. 10 TT. Mr. Taylor.

150. AMERICAN FICTION. I; 3 cr. 1:30 MWF. Mr. Clark.

151. SPENSER. I; 3 cr. Not offered 1938-39. 11 MWF. Mr. Hughes.

154. CARLYLE AND RUSKIN. I; 3 cr. Not offered 1938-39. 2:30 MWF. Mr. Roe.

155. ARNOLD AND PATER. II; 3 cr. Not offered 1938-39. 2:30 MWF. Mr. Roe.

156. EARLY SEVENTEENTH CENTURY. II; 3 cr. Not offered 1938-39. 10 MWF. Miss Wallerstein.

157. MILTON. II; 3 cr. 10 MWF. Mr. Quintana.

160. THE SIXTEENTH CENTURY. II; 3 cr. 10 MWF. Mr. Hughes.

161. LITERATURE 1660-1745. I; 3 cr. Not offered 1938-39. 10 MWF. Miss Wallerstein.

162. LITERATURE 1745-1798. II; 3 cr. Mr. Quintana.

163. OLD NORSE. (See Scandinavian 163.)

166. AMERICAN LITERARY THEORY. II; 3 cr. Mr. Clark.

169. MAJOR AMERICAN POETS. I; 3 cr. 11 TTq. Mr. Clark.

170. Twentieth Century American Literature. II; 3 cr. 1:30 MWF. Mr. Clark.

171. American Literature 1607-1754. II; 3 cr. 10 MWF. Mr. Pochmann.

172. Studies in Poetry. I; 3 cr. 7:30-9:30 Mq. Mr. C. W. Thomas.

173. American Literature 1754-1809. II; 3 cr. 2:30 MWF. Mr. Clark.

174. Major American Prose Writers. I; 3 cr. 10 MWF. Mr. Pochmann.

177. Renaissance Satire. Does not give credit in English. (See Comparative Literature 177.)

179. Social Ideals in English Letters. II; 3 cr. Not offered 1938-39. Miss Thornbury.

180. Reading for Honors. Prerequisites: Upper-group standing in major and consent of instructor. See section 20, page 66. 4 cr. See Mr. Fulcher.

185. Introduction to Phonetics. I; 3 cr. 1:30 MWF. Mr. Hanley.

186. Advanced Phonetics. II; 3 cr. Students who elect courses 185 and 186 as preparation for later advanced work in the American language will be assigned 1 cr. of extra work each semester. 1:30 MWF. Mr. Hanley.

200. Research in English. II; 2 cr. Mr. Beatty.

209. Milton. II; 3 cr. Not offered 1938-39.

210. Seventeenth Century. Yr; 3 cr. Not offered 1938-39. 9 MWF. Miss Wallerstein, Miss White.

227. History of the English Language. Yr; 2 cr. 7:30-9:30 Tu. Mr. Leonard.

232. Seminary. Yr; 2 cr. 3:30-5:30 Th. 1938-39, Chaucer. Mr. Leonard.

233. Introductory Seminary. Yr; 2 cr. 1:30-3:30 W. 1937-38 Shakespeare. Miss Wales, Miss Doran, Mr. Eccles; 1938-39, Tudor and Stuart Drama, Mr. Eccles.

235. Introductory Seminary: English Language in America. Yr; 2 cr. 7:30-9:30 Th. Mr. Hanley.

240. Introductory Seminary. Yr; 2 cr. 1:30-3:30 Th. 1937-38, American Criticism, Mr. Clark; 1938-39, German-American Relations, Mr. Pochmann.

244. Seminary. Yr; 2 cr. 1:30-3:30 Tu. 1937-38, (also Comparative Literature.) Literary Criticism in the Renaissance, Mr. Hughes; Seventeenth Century, 1660-1714, Mr. Quintana.

248. Bibliography and Methods of Research. I; 2 cr. 11 TT. Mr. Hughes.

TEACHERS' COURSE

The Teaching of English. See School of Education.

FINE ARTS

(See Art History, page 110)

FORESTRY AND FOREST PRODUCTS

ARTHUR KOEHLER, M.S., *Lecturer in Forest Products*
HARRY DONALD TIEMANN, M.E., M.F., *Lecturer in Forest Products*

These courses are given in cooperation with the United States Forest Products Laboratory, as described under that heading, to which students interested in the utilization of wood, chemistry of forest products, etc., are referred for further information. The three courses here listed may be elected by juniors and seniors in Letters and Science with the consent of the Dean.

1. GENERAL FORESTRY. I; 2 cr. Native trees; forest conditions, policy, history, conservation, and utilization. 11 TT. Mr. Tiemann.

101. PROPERTIES OF WOOD. I; 2 cr. Physical, mechanical, and chemical properties of wood; structure of wood fibres; seasoning, gluing, finishing, and pulping characteristics; relation of defects and fungi to wood properties. Prerequisite: Forestry 1 or equivalent. Not offered 1938-39. Mr. Koehler, et al.

102. WOOD TECHNOLOGY. II; 2 cr. 11 TT. Mr. Tiemann.

FRENCH AND ITALIAN

HUGH ALLISON SMITH, M.A., *Professor of French, Chairman*
AMÉRICO CASTRO, Ph.D., Litt.D., *Professor of Spanish and Comparative Literature*
FREDERIC DANIEL CHEYDLEUR, Ph.D., *Professor of French*
SAMUEL GREENE ARNOLD ROGERS, M.A., *Professor of French*
EDWARD BUNKER SCHLATTER, Ph.D., *Professor of Romance Languages*
CASIMIR DOUGLASS ZDANOWICZ Ph.D., *Professor of French* (on leave II)
CHARLES FREDERICK GILLEN, Ph.D., *Associate Professor of French*
JOSEPH LOUIS RUSSO, Ph.D., *Associate Professor of Italian* (on leave I)
JULIAN EARLE HARRIS, Ph.D., *Assistant Professor of French*
ANDRÉ LÉVÊQUE, Ph.D., *Assistant Professor of French*
ROBERT BELL MICHELL, Ph.D., *Assistant Professor of French*
EDWARD ELGIN MILLIGAN, Ph.D., *Assistant Professor of French*
JOSEPH ROSSI, Ph.D., *Assistant Professor of Italian*
WILLIAM T. BANDY, Ph.D., *Lecturer in French*

INSTRUCTORS

KARL G. BOTTKE, M.A.
SÉLIM EZBAN, Ph.D.
ELIOT G. FAY, Ph.D.
CHARLES HUNT GREENLEAF, M.A.
GERMAINE MERCIER, M.A.
JOSEPH PALMERI, Ph.D.
JOHN MICHAEL SULLIVAN, M.A.
JOSEPH E. TUCKER, Ph.D.

The elementary courses in French and Italian have been planned to meet the needs of those who have begun the language in high school, as well as of those who take it up for the first time in college. One unit (year) of high-school work is assumed to be the equivalent of 4 credits, or one semester, of college work, but all entering freshmen and transfers continuing their work in language are

assigned to courses on the basis of placement tests given during Freshman Period. These tests may permit a student to go into a more advanced course but will not give extra credit toward graduation.

See also page 56 for attainment tests which may at the option of the student be substituted for the required number of credits in meeting the language requirements for the bachelor's degree. Lists of suggested readings in preparation for the proficiency test may be obtained from the department office.

French 13 and 15 and Italian 15 are second-year practice courses intended to supplement the training in French 10 and Italian 10, which emphasize the acquiring of reading knowledge. They may be taken only in conjunction with some other course in the language, except by special permission. French 25, 124, and 127, and Italian 116 afford more advanced training in writing and speaking.

French 21 is a third-year course which includes translation, study of the literary aspects of the work read, and literary history. This course, or its equivalent, is prerequisite to advanced courses in French literature. Italian 21 is similarly designed to be introductory to other courses in Italian literature, although students receiving a grade of A in fourth-semester Italian should go directly into the advanced courses in literature.

Students are advised to consult the foreign-language requirements for the B.A. degree, page 67.

MAJOR. In French, 28 credits in advance of 1b, including thesis, thesis course, or substitute. In Italian, 24 credits in advance of 1b. Students may take 4-6 credits in literature courses numbered above 100 in lieu of writing a thesis.

By faculty requirement, students choosing a foreign-language major, must present at least eight credits in a second foreign language.

A departmental certificate of proficiency in oral French, required of teaching majors, may also be obtained by others on the basis of a special examination or demonstration of the necessary command of the spoken language at the French House.

All who intend to specialize in French or Italian are urged to elect related courses in history, art, other languages and literature, and philosophy. Those who expect to continue work for advanced degrees should note that knowledge of another foreign language is required for the M.A., and that for satisfactory work in Romanic philology some knowledge of Latin is indispensable. Both Latin and German, as well as another Romance language, are required for the Ph.D. and should be acquired as early as possible.

TEACHING MAJOR AND MINOR. See School of Education.

FRENCH HOUSE. *La Maison Française,* intended especially for intensive training in speaking French, is maintained under the auspices of the department. It is open to women students for room and board, and both men and women rooming outside may take their meals there. Women of French birth reside in the house to aid in conversation and they, with regular instructors, preside at the tables, where French only is spoken. Prospective teachers of French, and all others desirous of acquiring practice in the spoken language, are urged to room or board at the French House. With approval of the departmental faculty, a part of the prescribed training in conversation, necessary for the teachers' certificate, may be done in this house. Requests for further information and application for rooms and board should be directed to the Chairman, Department of French and Italian, and sent well in advance, both for summer session and regular year. The house is also headquarters for the French Club.

ITALIAN TABLE. An Italian table is conducted several times a week at *La Maison Française.* Inquiries should be addressed to Professor Russo.

CLUBS. French and Italian clubs at the University afford students opportunities to hear talks about the country whose language they are studying, to participate in short plays and games, and to converse in the language in which they are interested. Modern and classical plays are presented in public from time to time.

FRENCH

LANGUAGE

1a. FIRST-SEMESTER FRENCH. I, II; 4 cr. For students who have had no French. 20 sections I; 6 sections II. Mr. Milligan and staff.

1b. SECOND-SEMESTER FRENCH. I, II; 4 cr. Prerequisite: French 1a or one year of high-school French. Based on an examination, or a previous record of B or above, the upper-group students are assigned to special sections. 5 sections I; 18 sections II. Mr. Milligan and staff.

3. READING COURSE FOR GRADUATE STUDENTS. I, II; *cr. Mr. Gillen.

10a. THIRD-SEMESTER FRENCH. I, II; 3 cr. Largely a reading course. Prerequisite: French 1b or two years of high-school French. Based on an examination, or a previous record of B or above, the upper-group students are assigned to special sections. 16 sections I; 5 sections II. Mr. Milligan and staff.

10b. FOURTH-SEMESTER FRENCH. I, II; 3 cr. Largely a reading course. Prerequisite: French 10a or three years of high-school French. Based on an examination, or a previous record of B or above, the upper-group students are assigned to special sections. 5 sections I; 14 sections II. Mr. Milligan and staff.

13. RAPID READING. Yr; 1 cr. Emphasis on sight translation; contemporary prose. To be taken only with French 10a or 10b; not open to students with two years of college French (except by special permission). Does not count toward French teaching major or minor. 6 sections. Mr. Milligan and staff.

15. ELEMENTARY COMPOSITION AND CONVERSATION. Yr; 2 cr. Review of grammatical principles with oral and written exercises. Supplementary course to be taken with French 10a and 10b. Not open to students who have had the equivalent of two years of college French, except by special permission. 7 sections. Mr. Milligan and staff.

25. INTERMEDIATE COMPOSITION AND CONVERSATION. Yr; 2 cr. Prerequisite: Grade of at least C in 10b or in 15b. 7 sections. M. Lévêque and staff.

48. FRANCE OF TODAY. Yr; 2 cr. Reading and discussion of books, newspapers, and periodicals. Open only to students in journalism and commerce, except by special permission. Prerequisites: French 10b and sophomore standing. 8 TT. Mr. Harris.

80. SUPERVISED INDIVIDUAL READING. Yr; 2 cr. For upper-group students who have passed the "intermediate" test in French, or have received a grade of B in French 10 or equivalent, and desire further practice in reading French in subject matter related to their major field of study. Texts of general and not too technical character are to be agreed upon in consultation with the student's major professor. Each individual arrange-

ment requires the approval of the Dean and of the Chairman of the Department of French and Italian.

124. Composition and Conversation. Yr; 2 cr. Prerequisite: French 16 or grade of A or B in 10b and 15b. Conducted in French. 3 sections. M. Lévêque and staff.

127. Advanced Composition and Conversation. Yr; 2 cr. Prerequisite: French 25 with grade of A, or French 124. Conducted in French. 10 TT. Mlle Mercier.

141. History of the French Language. Yr; 2 cr. Lectures and assigned reading. Prerequisite: French 21. 2:30 TT. Mr. Schlatter.

190. French Phonetics. I, II; 2 cr. Theory of French sounds, with practice in pronunciation. Prerequisite: Three years of college French. 9 or 1:30 TT. Mr. Bottke.

191. French Diction. II; 2 cr. Practical interpretative reading. Study of stress, rhythm, articulation, voice, intonation. Prerequisite: French 190 or consent of instructor. 10 TT. Not offered 1938-39. Mlle Mercier.

227. Graduate Course in Composition. Yr; 1 cr. Open to students who have had French 127 or equivalent. Conducted in French. M. Lévêque.

240. Old French. Yr; 2 cr. An introductory course, phonology and grammar. Lectures and reading. 3:30-5:30 Th. Mr. Harris.

244. Old Provençal. Yr; 2 cr. Not offered 1938-39. Mr. Harris.

273. Romance Philology. Yr; 2 cr. Offered 1939-40. Sr. Castro.

TEACHERS' COURSE

The Teaching of French. See School of Education.

LITERATURE

Six credits in French 21, or equivalent, are prerequisite to all other courses in French literature.

21a. Elementary Survey (19th century). I, II; 3 cr. Prerequisite: French 10b or four years of high-school French. Based on an examination, or a previous record of B or above, the upper-group students are assigned to special sections. Translation, assigned reading, study of literary aspects of work read, and literary history. 8 sections I (one of which is conducted in French); 6 sections II. Mr. Michell and staff.

21b. Elementary Survey (17th and 18th centuries). I, II; 3 cr. Prerequisite: French 21a. Based on an examination, or a previous record of B or above, the upper-group students are assigned to special sections. 3 sections I; 8 sections II (one of which is conducted in French). Mr. Michell and staff.

50. French Masterpieces in Translation. Does not carry credit in French. (See Comparative Literature 50.)

100. Thesis. Yr; 2 cr. Students must register with the chairman of the department for individual theses. Mr. Smith and staff.

122. FRENCH LITERATURE OF THE NINETEENTH CENTURY. Yr; 3 cr. 10 MWF. Mr. Fay.

123. MODERN FRENCH DRAMA. Yr; 3 cr. From the Romantic period to the present. 9 and 10 MWF. Mr. Smith.

125. CONTEMPORARY FRENCH LITERATURE. Yr; 3 cr. Novel and drama. From 1870 until today. This course should be preceded by some general course on a century or a genre. 1:30 MWF. Mr. Rogers.

126. EXPLICATION DE TEXTES. I; 2 cr. Reading of texts, prose and poetry, with a careful study of the contents, author, background, etc. Conducted in French. 10 TT. Not offered 1938-39. Mr. Bandy.

131. GENERAL SURVEY OF FRENCH LITERATURE. Yr; 3 cr. 8 MWF. Mr. Cheydleur.

132. FRENCH LITERATURE OF THE EIGHTEENTH CENTURY Yr; 2 cr. Especially Voltaire, Diderot, Rosseau. 9 TT. Mr. Michell.

133. VICTOR HUGO. II; 2 cr. Mr. Michell.

134. BALZAC. II; 2 cr. 11 TT. Not offered 1938-39. Mr. Michell.

136. FRENCH NOVEL FROM THE SEVENTEENTH CENTURY TO THE TWENTIETH. Yr; 3 cr. 11 MWF. Mr. Cheydleur.

137. MOLIÈRE. I; 2 cr. 11 TT. Not offered 1938-39. Mr. Zdanowicz.

139. FRENCH LITERATURE OF THE SEVENTEENTH CENTURY. Yr; 3 cr. Conducted in French. 9 MWF. M. Lévêque.

145. FRENCH LITERATURE OF THE SIXTEENTH CENTURY. Yr; 2 cr. 1:30 TT. Mr. Zdanowicz.

150. FRENCH CIVILIZATION. Yr; 1-2 cr. The background of history, art, and institutions as an aid to the understanding of the principal movements of French literature. Lectures, readings, and reports. 1:30 TT. Conducted in French. M. Lévêque.

155. BIOGRAPHY AND LETTERS. II; 3 cr. Study of the classic biographies of the great figures in French literature, art, science, and policies, and of the letter-writers who reflect the general culture of France. 11 MWF. Mr. Gillen.

157. FRENCH LYRIC POETRY. I; 3 cr. 11 MWF. Mr. Gillen.

163. FRENCH-SPANISH LITERARY RELATIONSHIPS. Yr; 2 cr. Literary contacts between France and Spain from the XIIIth to the XIXth centuries. Conducted in French. Offered 1938-39 and in alternate years. 2:30 TT. Sr. Castro.

180. ADVANCED INDEPENDENT READING. For upper-group majors complying with conditions of Paragraph 20, page 66. Consult Chairman of Department.

200. INDIVIDUAL RESEARCH IN FRENCH.. Yr; *cr. Superior graduate students, with special permission, may do individual research, under supervision, in some definite field. Staff, on consultation with Chairman of Department.

245. SEMINARY, CRITICAL STUDY OF OLD FRENCH TEXT. Yr; 2 cr. A critical study in establishing an Old French text made from eleven manuscript

copies, with a brief introduction to Romance paleography of the 12th to the 14th centuries. Open to graduate students in any department, interested in text editing, who have the proper preparation in French. Not offered 1938-39. Mr. Smith.

250. The Renaissance in France. Yr; 2 cr. A study of the development of the Renaissance spirit and its manifestation in France, with special study of some representative 16th-century author. 3:30-5:30 Tu. Not offered 1938-39. Mr. Zdanowicz.

252. Seminary, Ancient French Drama. Yr; 2 cr. A survey of the medieval French drama from its beginnings, with special attention to the 14th-Century Miracle Plays and to the 15th-Century Farces. Not offered 1938-39. Mr. Smith.

253. Seminary, French Literature. Yr; 2 cr. The growth of Classicism and its general spirit, with special study of some representative author each semester. 2:30-4:30 F. Mr. Zdanowicz.

254. Seminary, French Literature. Yr; 2 cr. Realism and Naturalism in the French drama. 2:30-4:30 M. Mr. Smith.

256. Seminary, Modern French Literature. Yr; 2 cr. Romanticism. Not offered 1938-39. Mr. Bandy.

ITALIAN

LANGUAGE

1a. First-Semester Italian. I, II; 4 cr. For students who have not studied Italian. 4 sections I; 2 sections II. Mr. Russo and staff.

1b. Second-Semester Italian. I, II; 4 cr. Prerequisite: Italian 1a or one year of high-school Italian. 1 section I; 3 sections II. Mr. Russo and staff.

9. Beginning Italian for Graduates. I, II; two hours per week; no credit. A very rapid course aiming at a reading knowledge. 4:30 MW. Mr. Rossi.

10a. Third-Semester Italian. I; 3 cr. Prerequisite: Italian 1b or two years of high-school Italian. 2 sections. Mr. Milligan, Mr. Rossi.

10b. Fourth-Semester Italian. II; 3 cr. Prerequisite: Italian 10a or three years of high-school Italian. 2 sections. Mr. Milligan, Mr. Rossi.

15. Elementary Composition and Conversation. Yr; 2 cr. Review of grammatical principles with oral and written exercises. Supplementary course to be taken with Italian 10a and 10b or with the consent of Mr. Russo. 11 TT. Mr. Crane.

49. Italy of Today. Yr; 2 cr. Lectures alternated with a study of the elements of the Italian language for the purpose of acquiring rapidly a reading knowledge of simple, journalistic Italian. Lectures on the present social, economic, cultural, and political conditions in Italy; language study based on reading of current periodicals as soon as the few essential linguistic elements have been acquired. 9 TT. Mr. Rossi.

80. Supervised Individual Reading. Yr; 2 cr. For upper-group students who have passed the "intermediate" test in Italian, or have received a

grade of B in Italian 1b or equivalent, and desire further practice in reading Italian in subject matter related to their major field of study. Texts of general and not too technical character are to be agreed upon in consultation with the student's major professor. Each individual arrangement requires the approval of the Dean and of the Professor of Italian.

116. ADVANCED COMPOSITION AND CONVERSATION. Yr; 2 cr. Prerequisite: Italian 15 with grade of B. 9 TT. Mr. Rossi I; Mr. Russo II.

LITERATURE

Two years of Italian in college, or the equivalent, are prerequisite to advanced courses in Italian, except by special permission of the instructor.

21. ELEMENTARY SURVEY. Yr; 3 cr. Translation, assigned reading, study of literary aspects of work read, and literary history. 10 MWF. Mr. Rossi.

53. ITALIAN MASTERPIECES IN TRANSLATION. Does not give credit in Italian. (See Comparative Literature 53.)

100. SENIOR THESIS. Yr; 2 cr. Mr. Russo.

102. ITALIAN LITERATURE OF THE LAST FIFTY YEARS. Yr; 2 cr. Especially Carducci, D'Annunzio, Pascoli, Fogazzaro, Verga, and Pirandello. Conducted in Italian. 3:30 MW. Not offered 1938-39. Mr. Russo.

122. RISORGIMENTO. Yr; 2 cr. A study of the authors who, from the time of the French Revolution to 1870, inspired the struggle for the rebirth of Italy. Conducted in Italian. 1:30 MWF. Not offered 1938-39. Mr. Russo.

123. ITALIAN DRAMA. Yr; 3 cr. The development of Italian drama from its origins to the present. Conducted in Italian. 2:30 MWF. Not offered 1938-39. Mr. Russo.

131. GENERAL SURVEY OF ITALIAN LITERATURE. Yr; 3 cr. Lectures, reports and reading of representative works from the thirteenth century to the present. 11 MWF. Mr. Rossi.

136. ITALIAN NOVEL. Yr; 3 cr. A study of the short story and the novel from the *Novellino* to Pirandello. Not offered 1938-39. Mr. Russo.

141. ITALIAN LITERATURE OF THE SEVENTEENTH CENTURY. I; 2 cr. Spanish influence, *marinismo,* new thought; Bruno and Campanella. Conducted in Italian. Not offered 1938-39. Mr. Russo.

142. ITALIAN LITERATURE OF THE EIGHTEENTH CENTURY. II; 2 cr. Arcadia and Rinnovamento; Goldoni, Parini, and Alfieri. Conducted in Italian. 3:30 MW. Mr. Russo.

152. ITALIAN RENAISSANCE. Yr; 3 cr. From Petrarch to Tasso. Humanism and classicism; particular emphasis on the poems of chivalry, Machiavelli and Guicciardini. Conducted in Italian. Not offered 1938-39.

160. DANTE'S *Divina Commedia.* Yr; 3 cr. Lectures on Dante's life and times, reading of the *Divine Comedy,* comment, discussions, reports. Offered 1938-39 and in alternate years. 1:30 MWF. Mr. Rossi and Mr. Russo.

161. TRECENTO. Yr; 2 cr. The literature of the fourteenth century, excluding the *Divine Comedy.* Not offered 1938-39. Mr. Russo.

200. Individual Research. Yr; *cr. Graduate students with special permission may do research in some field. Mr. Russo.

PHILOLOGY

171. Introduction to Italian Philology. I; 2 cr. Derivation of the Italian language from medieval Latin; elementary phonology and morphology. Not offered 1938-39. Mr. Russo.

172. Early Italian Writers. II; 2 cr. The Italian literature before Dante. Not offered 1938-39. Mr. Russo.

GAELIC

(See Irish, page 182)

GEOGRAPHY

Vernor Clifford Finch, Ph.D., *Professor of Geography, Chairman*
Wilhelm Credner, *Carl Schurz Memorial Professor of Geography* (I)
Glenn Thomas Trewartha, Ph.D., *Professor of Geography*
Joe Russell Whitaker, Ph.D., *Associate Professor of Geography*
Loyal Durand, Jr., Ph.D., *Assistant Professor of Geography*
Henry S. Sterling, M.A., *Acting Instructor in Geography*

The distinctive field of geography is the study of the earth's regions. It is a comparative science, which seeks to know and understand the likenesses and contrasts between the various parts of the earth's surface. Forms, patterns and associations of both the natural and man-made (cultural) features which exist together within regions, are systematically described and interpreted. It is obvious from the kinds of materials with which the geographer deals that his science is neither exclusively social nor natural, but belongs to both. It is inherently dual in nature. In the outline of courses which follows, two principal subdivisions have therefore been recognized: (1) those courses which are primarily physical geography, and (2) those in which the cultural or human aspects are emphasized. Physical geography, as it is being developed at Wisconsin, is a study of those features of the natural earth (particularly climate and landforms, but also native vegetation, soils and mineral resources) which significantly affect the potentialities of the earth's regions for human use. Such a study of the natural environment provides a solid foundation, not only for cultural or human geography, but for all the other social sciences as well.

The introductory courses in geography are 1-2, 5-6, and 17. All of these with the exception of 6, which is cultural geography, emphasize the natural environment. For a general survey of the field of geography any of these courses should be followed by one or more of the regional courses 101, 102, 103, 104, 107, 110, and 111, and by one or more of the topical courses, 106, 127 and 128. Courses 1-2 and 17 are the only ones in geography which completely or partially satisfy the natural science requirements for the bachelor's degree. Only those courses listed under the head of cultural geography may be taken to meet the requirements in social science. Geography 5-6, an introductory course in general geography, both natural (Geography 5) and cultural (Geography 6), is intended primarily for those expecting to enter the School of Commerce, or for social science majors desiring a general background of world geography without laboratory training. Course 17 is the counterpart of course 5, with laboratory training added, and may be substituted for 5 in the 5-6 combination. Students who have had any one of the three introductory courses in physical geography (1-2, 5 or 17) may not elect either of the other two, but are eligible

for Geography 6, which is human or cultural geography. Students who have had either Geography 3 or 6 may not elect the other one.

MAJOR. An undergraduate major requires a minimum of 30 credits. Courses 1-2, 5-6, or 17 will normally be followed by a selection of the regional and topical courses together with such special courses (126, 131, 132, and 135) as the student may elect. Majors are expected to elect Geography 140 in the junior or senior years. Senior theses are written only by upper-group students and at the request of the department.

HISPANIC STUDIES AND AMERICAN INSTITUTIONS AS FIELDS OF CONCENTRATION. Students interested in these major fields should consult page 60.

PHYSICAL GEOGRAPHY (Natural Environment)

1–2. PHYSICAL GEOGRAPHY: THE NATURAL ENVIRONMENT. Yr; 5 cr. A general survey of the characteristics of the major types of land surfaces, climates, soils, and resources that comprise the natural environment of man. Open to freshmen. Students who have taken Geology 1 may receive but eight credits for the work in Geography 1-2 because of certain duplications in subject matter. Lab. fee $1.50.* Lecture 11 TT; 4 hrs. lab. and field work; 2 hrs. quiz. Mr. Durand and staff.

5. REGIONAL WORLD GEOGRAPHY: PHYSICAL ASPECTS. I; 3 cr. Analysis and world distribution of those features of the natural earth, such as climate, surface configuration, native vegetation, soils and mineral resources, which significantly affect the usefulness of the earth's regions; followed by a survey of the great geographic realms (tropical forest realm, the sub-humid grasslands, Mediterranean realm, and others) from the standpoint of their natural potentialities for human occupance and use. Geography 5-6 together form a year's unit of work covering both the natural and the cultural aspects of geography. See introductory paragraph. Open to freshmen. Lecture 11 M; discussion (2 hrs.). 11 WF, 8 TT or 9 TT. Mr. Trewartha.

17. SURVEY OF PHYSICAL GEOGRAPHY: MAN'S NATURAL ENVIRONMENT. I; 4 cr. A brief course designed to fulfill in part the non-professional science option for the B.A. degree. May be credited by students in the Ph.B. courses as a free elective only. Open to all students excepting those who have taken Geography 1-2 or 5. Analysis and world distribution of those features of the natural earth such as climate, surface configuration, native vegetation, soils and mineral resources, which significantly affect the usefulness of the earth's regions; followed by a survey of the great geographic realms from the standpoint of their natural potentialities for human occupance and use. Identical and concurrent with course 5 except that it has two hours of laboratory a week, grants four instead of three credits, and can be counted for natural science credit. May be substituted for course 5 by those who desire science credit. Lab. fee $1.00*. Lecture 11 M; discussion (2 hrs.). 11 WF, 8 TT or 9 TT; laboratory 2 hours. Mr. Trewartha.

140. CLIMATOGRAPHY. I; 3 cr. An analysis of those topics in air physics which are most fundamental to an understanding of climates. Weather types and storms. Classification of climates and the distribution of cli-

*Individual field expenses in Geography 1-2 about $1.00 additional per semester; in Geography 17 about $1.00 additional.

matic types over the earth. Prerequisite: Junior standing. 11 TTq. Mr. Trewartha.

141. CLIMATOGRAPHY OF THE CONTINENTS. II; 2 cr. Descriptive and explanatory analysis of the climatic characteristics which prevail in the various parts of each of the continents. Prerequisite: Geog. 140 or consent of instructor. Offered 1938-39 and in alternate years. 11 TT. Mr. Trewartha.

NOTE: Supplementary courses in certain aspects of physical geography offered in other departments are: Geology 109, 130, 143 and 230; Meteorology 103 and 106; and Soils 125. Upon the recommendation of the geography staff, certain of the above courses may be counted toward a major in the field of geography. Students in the Ph.B. curriculum needing 20 credits in science and mathematics, who have accumulated 10 credits in Geography 1-2 and 8 in mathematics, may complete the requirement by taking Geology 130 for 5 credits or by taking an additional mathematics course.

CULTURAL (Human) GEOGRAPHY

Included within the division of social sciences

3. ECONOMIC GEOGRAPHY. I; 3 cr. A survey course dealing primarily with the geography of commercial production. The world-wide distribution of the land uses and industries of major importance in the commercial world, the evolution of these economic features, and their relation to the natural and man-made conditions with which they are associated. Prerequisite: Sophomore standing. 11 TTq. Mr. Whitaker.

6. REGIONAL WORLD GEOGRAPHY: CULTURAL ASPECTS. I, II; 3 cr. A regional survey of the continents; description and interpretation of man's use of, and economic development in, various parts of the earth. Special emphasis upon those regions of greatest material development such as western Europe, the United States, the Far East, and others. Open to freshmen. No prerequisite; Geography 5 or 17 recommended. Lecture 11 M; discussion (2 hrs.) 11 WF or 9 TT. Mr. Finch, Mr. Trewartha.

101. GEOGRAPHY OF EUROPE (Not including Mediterranean countries). II; 3 cr. Includes the Russian lands of Asia. Prerequisite: Sophomore standing. 8 MWF. Mr. Durand.

102. GEOGRAPHY OF SOUTH AMERICA. II; 3 cr. Prerequisite: Sophomore standing. 9 MWF. Mr. Sterling.

103. GEOGRAPHY OF NORTH AMERICA. I; 3 cr. A study of regional differentiation, physical and cultural, in Anglo-America. Prerequisite: Sophomore standing. 10 MWF. Mr. Finch.

104. GEOGRAPHY OF WISCONSIN. I; 2 cr. Prerequisite: Sophomore standing. 1:30 TT. Mr. Durand.

106. AGRICULTURAL GEOGRAPHY. II; 3 cr. A study of the world distribution and environmental associations of selected crops and forms of agricultural industry. Prerequisite: Sophomore standing. Not offered 1938-39. 2:30 MWF. Mr. Finch.

107. GEOGRAPHY OF THE MEDITERRANEAN REGION. I; 3 cr. A study of the lands bordering the Mediterranean Sea—southern Europe, western Asia, and northern Africa. Prerequisite: Sophomore standing. 1:30 MWF. Mr. Whitaker.

110. Geography of Asia. I; 3 cr. Primarily a study of the Monsoon Lands of eastern and southern Asia with particular emphasis upon Japan, China and India. A comparative study of both the geographic and the political units which comprise Monsoonia. Prerequisite: Sophomore standing. 9 MWq. Mr. Credner.

111. Geography of Middle America. I; 2 cr. Includes Mexico, Central America, and the West Indies. Prerequisite: Sophomore standing. 9 TT. Mr. Sterling.

120. The Tropics as a Source Region of Raw Materials for World Industry. I; 2 cr. Analysis of the principal areas of commercial production within the tropics. 10 TT. Mr. Credner.

127. Industrial Geography of the United States. II; 3 cr. Prerequisite: Sophomore standing. 10 MWF. Mr. Durand.

128. Conservation of Natural Resources. I, II; 3 cr. The natural resources of the United States—waters, soil, forests, wildlife, scenery, and minerals: their value and regional distribution, their misuse and depletion in the past, and current efforts to insure an adequate supply of them for the future. Prerequisite: Sophomore standing. 8 TTq. Mr. Whitaker.

Note: A supplementary course in cultural geography dealing with distribution of mineral resources is offered in the Department of Geology. (See Geology 150.)

SPECIAL COURSES IN GEOGRAPHIC TECHNIQUE AND METHODS

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

126. Cartography and Graphics. II; 2 cr. Laboratory practice in the construction of map projections, topographic, statistical and other representations on maps and in drawing maps for reproduction in print. Prerequisite: Sophomore standing. 1:30-3:30 TT. Mr. Finch.

131. Summer Field Course in Geography and Physiography. 3 to 6 cr. During or following the summer session. Enrollment only by previous arrangement with the instructor. Not offered 1938-39. Mr. Durand.

135. Geographic Field Mapping and Field Technique. II; 3 cr. Prerequisite: Geography major or consent of instructor. 3:30-5:30 W and six Saturdays in the field. Mr. Trewartha.

180. Special Work in Geography. Yr; 1-3 cr. Open only to upper-group majors in department by consent of instructor. See section 20, page 66. Staff.

200. Reading and Research in Geography. Yr; *cr. Staff.

232. Seminary in Geography. Yr; 2 cr. Prerequisite: Graduate standing or consent of instructor. 3:30-5:30 Tu. I, Geographers and schools of geographic thought in Continental Europe. Mr. Credner. II, Staff.

ADVANCED COURSES IN REGIONAL GEOGRAPHY

The following course numbers are given to intensive studies of particular phases or regions of the geography of the continents, more advanced than those undertaken in the regional courses of the 100-group. They are open to graduate

students, and, by permission, to advanced undergraduate majors in the department, and to qualified majors in allied fields. *Not more than one of the courses in this group will be offered in any one semester.*

201. Northwestern Europe. Not offered 1938-39. Mr. Durand.

202. Latin America. Not offered 1938-39.

203. Northern Atlantic America. II; 3 cr. A detailed study of the areal characteristics of the Atlantic urban belt and its borderlands, the northern Appalachian and New England highlands. Consideration of the urban forms and functional areas; discovery of the principal regions of internal unity, and analysis of their physical and cultural elements and of the criteria of regional delimitation. Prerequisite: Graduate standing or consent of instructor: 3:30 MWF. Mr. Finch.

207. The Mediterranean Region. Not offered 1938-39. Mr. Whitaker.

210. The Far East. Not offered 1938-39. Mr. Trewartha.

TEACHERS' COURSE

The Teaching of Geography. See School of Education.

GEOLOGY

Alexander Newton Winchell, M.S., Sc.D., *Professor of Geology, Chairman*
*Charles Kenneth Leith, Ph.D., *Professor of Geology*
William Henry Twenhofel, Ph.D., *Professor of Geology*
Richard Conrad Emmons, Ph.D., *Professor of Geology*
Norman D. Newell, Ph.D., *Assistant Professor of Geology*
Stanley Allen Tyler, Ph.D., *Assistant Professor of Geology*
Fredrik Turville Thwaites, M.A., *Lecturer in Geology*

Major. A minimum of 30 credits, including thesis, is required. For students wishing a survey of the field for general educational purposes, courses 1, 6, 7, 8 and 17 are suggested. Course 1, General geology, is the principal introductory course. Short courses in geology and mineralogy (7, 8, and 17) are offered without prerequisites to students not intending to take further work in these subjects. Students who take these short courses will be allowed to enter advanced courses only by special arrangement. Field work is given in connection with Geology 1, 8, 11, 17, 112, 114, 125, 130, 133, and 143.

GENERAL GEOLOGY

1. General Geology. Yr; 5 cr. Students who have taken Geography 1 may receive but 3 credits for the work of the first semester in order to offset certain duplications of subject matter. The work of the first semester is a study of the materials and structure of the earth, the surface of the earth, and the processes which modify materials, structure, and surface; second semester, a study of earth history, and elementary paleontology. Lab. fee $1.50 each semester. Lecture 10 MTWTF; field trips and 2 hrs. lab. first semester, and 4 hrs. second semester. Mr. Twenhofel, Mr. Newell, Mr. Tyler.

*Part-time.

9. Engineering Geology. Yr; 3 cr. A course in elementary geology for students in engineering. First semester required of juniors in civil engineering; both semesters required of students in mining engineering. Lab. fee $1.50 per semester. Lecture 9 MWF; lab. Mr. Tyler.

11. Mapping. II; 3 cr. Not open to freshmen. Application of plane table and other instruments to geologic and topographic mapping. Lab. fee $3.00. Mr. Thwaites.

17. Survey of Geology: The Earth's Story. II; 3 cr. A brief course designed to fulfill in part the non-professional science option for the B.A. degree. May be credited by students in the Ph.B. course as a free elective only. Open to all students, excepting those who have taken Geology 1, or 9, or Geography 1. Lecture 9 MWF; field trips with supplementary laboratory work. Lab. fee $1.00. Mr. Newell.

100. Senior Thesis. Yr; 2 cr.

125. Lake Superior Field Trip. II; 1 cr. In the semester following course 117, a ten-day trip is taken to the Lake Superior district, offering a survey of the region. Shorter trips of one or two days are offered at irregular intervals. Mr. Leith.

135. History of Geology. I; 1 cr. Prerequisites: Geology 1 or 9, or Geography 1; senior standing. Offered 1937-38 and in alternate years. 1:30 W. Mr. Tyler.

200. Research. Yr; *cr. Staff.

253. Seminar: Current Geologic Literature. Yr; 1 cr. Staff.

Structural, Metamorphic and Economic Geology

52. Elementary Economic Geology. I; 3 cr. Prerequisites: Geology 1, 2 or 9, and 6 or 7. A study of the manner of occurrence, origin and uses of the metallic ores and the non-metallic mineral products. 10 MWF; 2 hrs. lab. Mr. Tyler.

114. Structural Geology. I; lect. 3 cr.; lab. 2 cr. The laboratory work includes map interpretation. Prerequisite: Geology 1. Lab. fee $3.00. Lect. 11 MWF; lab. 1:30-3:30 TT. Mr. Leith, Mr. Tyler.

115. Metamorphic Geology. II; 5 cr. Prerequisites: Geology 1 and 6. Offered 1938-39 and in alternate years. Lab. fee $3.00. Lect. 11 MWF, Mr. Tyler; lab. 1:30-3:30 TT. Mr. Emmons, Mr. Tyler.

117. Principles of Pre-Cambrian Geology. I; 2 cr. Prerequisite: Geology 114. Offered 1938-39 and in alternate years. For field trips see course 125. 11 TT. Mr. Leith.

150. Economic Aspects of Geology. I; 2 cr. A general survey of the field of mineral resources from the standpoint of geographic and commercial distribution, valuation, taxation, conservation, and international relations. The international phase of the discussion will cover questions of foreign exploitation, the "open door," tariffs, and relations to war. This course is introductory to Geology 151. Offered 1939-40 and in alternate years. 11 TT. Mr. Leith.

151. Geology of Mineral Deposits. II; 5 cr. Prerequisites: Chemistry 1, Geology 6 or 7, and Geology 1, 2 or 9, and 52. Metallic and non-metallic

mineral deposits are studied from the standpoint of mineralogy, field occurrence, and genesis. The principal mineral deposits are taken up topically. It is desirable, but not essential, that this course be preceded by course 150. Lab. fee $3.00. Lect. 11 MWF; lab. 1:30-3:30 TT. Offered 1939-40 and in alternate years. Mr. Tyler.

153. Mineral Resource Values. I; 1 cr. A general discussion of commercial, social, and political elements in resource valuation. Should be preceded by elementary courses in geology, geography, mining, or economics. 1:30 M. Offered in 1939-40 and in alternate years. Mr. Leith.

Historical Geology, Stratigraphic Geology, Paelontology, Sedimentation

22. Elementary Paleontology. II; 2 cr. A study of extinct organisms. To be preceded by or taken with Geology 1 or 9 unless the student has taken Zoology 1. 10 Tu and 2 hours lab. Fee $1.50. Mr. Newell.

112. Historical Geology and Stratigraphy. Yr; 3 cr. Prerequisites: Geology 1 or 9, and 121. Offered 1938-39 and in alternate years. 8 TT; 8-10 MWF. Lab. fee $2.00. Mr. Twenhofel.

121. Paleontology of Invertebrates. Yr; 3 cr. Prerequisite: Geology 1 or 22, or Zoology 1. Offered 1939-40 and in alternate years. 8-10 MWF. Lab. fee $2.50. Mr. Newell.

122. Micropaleontology. I; 5 cr. Prerequisite: Geology 121. An introduction to the biostratigraphy, morphology, and taxonomy of certain classes of microscopic fossils with emphasis on their stratigraphic utilization in oil field geology. Offered 1938-39 and in alternate years. Hours to be arranged. Lab. fee $5. Mr. Newell.

123. Oil Geology. II; 2 cr. Prerequisites: Geology 1 or 9, 114, and senior standing. Offered 1939-40 and in alternate years. Mr. Twenhofel.

133. Sedimentation. I; 5 cr. Prerequisites: Geology 1 or 9, 6, 114, and senior standing. Lect. 8 MWF. Lab. fee $3.00. Mr. Twenhofel, Mr. Tyler.

134. Regional Geology. Yr; 2 cr. Prerequisites: Geology 1 or 9, 114, and senior standing. A study of world geology. Western hemisphere first semester, eastern hemisphere second semester. Offered 1937-38 and in alternate years. 8 TT. Mr. Twenhofel.

136. Principles of Erosion. II; 2 cr. This course is designed to present the principles of erosion, particularly in relation to erosion of the soils of agricultural areas, and the ultimate economic, social and political consequences of erosion. Open to juniors, seniors, and graduates. 10 TT. Mr. Twenhofel.

233. Studies of Sediments. II; 2 cr. Prerequisite: Geology 133. Lab. fee $5.00. Mr. Tyler.

MINERALOGY AND PETROLOGY

6. General Mineralogy. Yr; 5 cr. Prerequisite: Chemistry 1 or a high-school course in chemistry. Lab. fee $6.00 per semester. I: Lect. 8 MWF; lab. 8-10 TT. II: Lect. 8 TT; lab. 8-10 MWF. Mr. Winchell, Mr. Emmons.

7. Short Course in Mineralogy. I; 3 cr. Lab. fee $6.00. 10-12 TT. Mr. Emmons.

8. Short Course in Lithology. II; 2 cr. The megascopic study of igneous, metamorphic and sedimentary rocks. Prerequisite: Chemistry 1 or a high-school course in chemistry. Open to graduate students but does not carry graduate credit. 3:30-5:30 TT. Mr. Emmons.

108. Petrology. Yr; 5 cr. Prerequisite: Geology 6 or 7. Lab. fee $10.00 per semester. 9-11 MTWTF. Mr. Winchell.

120. Advanced Mineralogy. I or II; 2-4 cr. The relations between composition and optical properties in isomorphous groups. Prerequisite: Geology 6. Mr. Winchell.

129. Petrogeny. Yr; 2 or 3 cr. Prerequisite: Geology 108. Lab. fee $1.00 per semester. Mr. Winchell.

138. Microscope Identification of Crystalline Materials by Immersion Methods. I; 4 cr. Prerequisite: Consent of instructor. Lab. fee $10.00. 3:30 TT and lab. Mr. Emmons.

139. Universal Stage Studies. II; 2 cr. Prerequisite: Geology 108 or 138. The application of the universal stage to problems of determinative mineralogy. Lectures deal with the determination of the twinning and composition of plagioclase feldspars and with special methods for the study of "heavy residuals." Lab. fee $5.00. Mr. Emmons.

141. Mineragraphy. II; 2 cr. Prerequisite: Geology 6. Lab. fee $6.00. Mr. Marsden.

Glacial Geology and Physiography

109. Advanced Physiography. I; 3 cr. Study of methods of research and of special problems in the origin of land forms. Offered 1938-39 and in alternate years. Mr. Thwaites.

130. Physiography of the United States. Yr; 3 or 5 cr. Prerequisite: Geology 1, 9 or 17, or Geography 2. Lab. fee $1.00 per semester for 5 cr. only. 1:30 MWF; lab. Mr. Thwaites.

143. Glacial Geology. II; 3 cr. Prerequisite: Geology 1 or 9, or Geography 2. 3:30 MWF. Mr. Thwaites.

GERMAN

W. Freeman Twaddell, Ph.D., *Professor of German, Chairman*
Friedrich Bruns, Ph.D., *Professor of German*
Robert Oswald Roeseler, Ph.D., *Milwaukee Seminary Professor of German*
Adolphine Bianca Ernst, Ph.D., *Associate Professor of German, Extension Division*
Roe-Merrill S. Heffner, Ph.D., *Associate Professor of German*
Helmut Rehder, Ph.D., *Associate Professor of German*
Stella M. Hinz, Ph.D., *Assistant Professor of German*
Paula Margaretha Kittel, Ph.D., *Assistant Professor of German*
John Paul von Grueningen, Ph.D., *Assistant Professor of German*
Hermann Barnstorff, Ph.D., *Instructor in German*
Sieghardt M. Riegel, Ph.D., *Instructor in German*
Herman Salinger, Ph.D., *Instructor in German*
John D. Workman, M.A., *Acting Instructor in German*

For Attainment Tests see section 11, page 57. Proficiency in German shall be shown by demonstrating, in course and by a final comprehensive examination, (a) adequate comprehension of representative passages from classic and modern authors, (b) a systematic as well as functional command of German grammar, (c) the ability to understand and pronounce simple phrases in the spoken language, (d) some knowledge of the literature and culture of the German-speaking peoples, (e) a fair degree of familiarity with the works of some single major German author. The curricular preparation for such proficiency is offered in courses (beyond German 2b or the intermediate examination) 20a, 20b, 25a, 101, and any one course in the group 105-109.

The Elementary Courses represent the work normally done in the first and second years, and are graded to meet the needs of high-school graduates with different degrees of preparation. One year of high-school work is considered as equivalent to one semester (4 credits) of college work; but freshmen, as well as students transferring from other colleges, are assigned to the various courses and given credit for the work done elsewhere on the basis of placement and attainment examinations. Special sections of German 1a, 1b, and 2a have been organized for students who appear to possess a special aptitude for language study, as determined on the basis of record, placement examinations, and aptitude tests. In these sections increased amounts of reading material are covered, with a corresponding reduction in the number of semesters required for the completion of the elementary work in German. On the other hand, students in elementary courses who are experiencing difficulty, especially in grammar and pronunciation, are given an opportunity to receive special group aid once a week.

The Advanced Practice Courses are intended for specific practical ends, definitely stated in each case. None of these courses is required of students wishing to study German for purely literary purposes.

The Literary Courses are of very different degrees of advancement. The less advanced courses are divided into two groups designated A and B. Students are advised not to enter group B unless they have taken at least one course in group A, or its equivalent. About eight credits in these two groups combined are prerequisite for the higher courses (beyond 110) in literature or philology. Students intending to specialize in German literature are advised to do related work in English and comparative literature, in medieval and modern history, especially German history, in the history of art, and in philosophy. They are required to

study a second foreign language (see below) and should try to pursue the study of at least one other foreign literature, ancient or modern.

The PHILOLOGY COURSES are primarily intended for graduate students working for a higher degree, but some of them are well suited to the needs of advanced undergraduates. This is especially true of courses 150, 151, and 191, which are so conducted as to be of direct benefit to properly qualified seniors, and are required of those preparing to teach German as their major subject.

MAJOR: 32 credits or equivalent, including at least 8 credits beyond course 110. Students who are requested to write a thesis need take only 4 credits beyond course 110. All students offering a foreign-language major are required to present 8 credits or to pass the "intermediate knowledge" test in a second language. Those intending to work for the degree of M.A. with a major in German should note that they too will be required to prove such knowledge.

For the requirements for a teaching major and minor, see School of Education.

DEUTSCHER VEREIN. All students and instructors who are interested in the German language and literature and in German life and culture are eligible to membership in the German Club, which meets in general twice a month while the University is in session. The programs comprise lectures, recitations, singing, dramatic and musical performances, and social entertainments. Once a week students meet at the German House for song practice.

DEUTSCHES HAUS. The German House, which is intended primarily for the benefit of students who wish to maintain or improve their speaking knowledge of German, is open to women students for room and board, and to both men and women residing outside the house for meals. The house is in charge of a regular member of the German Department, and German is spoken at meals and is the official language of the house. Members of the teaching staff live and board at the house and preside at the tables. Especially those students who intend to teach German are urged to room or board at the house, but all others who desire practice in hearing and speaking German are eligible to full membership and are welcome as table boarders. A few undergraduate German House scholarships are available for students majoring or minoring in German who could otherwise not afford to live or board at the House. For further information, apply to German House, 508 North Frances Street, Madison.

1a. FIRST-SEMESTER GERMAN. I, II; 4 cr. For students who have had no German. Pronunciation, grammar foundation, oral and written exercises. Several sections. (Special sections of 1a and 1b open to especially interested students on the basis of their high-school records and certain preliminary university tests.)

1b. SECOND-SEMESTER GERMAN. I, II; 4 cr. Continuation of the practice work of the first semester, systematic work in translation, extensive reading begun. Prerequisite: German 1a, or one year of high-school German. Several sections. (For special sections see under 1a.)

2a. THIRD-SEMESTER GERMAN. I, II; 3 cr. Chief emphasis on reading. Grammar review, oral practice, and written work. Concurrent registration in 4a or 5a recommended. Prerequisite: German 1b, or two years of high-school German. Several sections.

2b. FOURTH-SEMESTER GERMAN. I, II; 3 cr. Continuation of the work of 2a. Concurrent registration in German 4b or 5b recommended. Prerequisite: German 2a, or equivalent. Several sections.

4a. THIRD-SEMESTER READING. I, II; 1 cr. Class meets twice a week. Modern prose, narrative, argumentative. Practice in reading at sight. Open only in connection with 2a. Several sections.

4b. FOURTH-SEMESTER READING. I, II; 1 cr. Continuation of work in 4a, with more advanced texts. Open only in connection with 2b or 20. Several sections.

5. ELEMENTARY COMPOSITION AND CONVERSATION. Yr; 2 cr. Review of grammar, with oral and written work. Expected of those who plan to do advanced work in the language. Prerequisites: 1b or equivalent; concurrent registration in 2a, 2b, 14, 15, 17, 18, or 19.

9. BEGINNING GERMAN FOR GRADUATES. Yr; two hours a week; no credit. Leads up to German 16. Miss Hinz.

ADVANCED PRACTICE COURSES

16. PROSE READING FOR GRADUATES. Yr; two hours a week; no credit. For students preparing to secure the certificate of reading knowledge. Prerequisite: German 9 or consent of instructor. Miss Hinz.

25. INTERMEDIATE COMPOSITION AND CONVERSATION. Yr; 2 cr. Prerequisite: German 2b. Required of all teaching majors and minors, unless 112 is substituted. The first semester is devoted to a systematic study of German grammar, with illustrative translation exercises. The second semester is devoted to composition and conversation. Several sections.

28. SCIENTIFIC GERMAN. Yr; 2 cr. Translation course for students specializing in science. Especially for students of chemistry. Prerequisite: German 2b or equivalent. 8 TT. Miss Ernst.

29. SCIENTIFIC GERMAN. Yr; 2 cr. Translation course for students specializing in science. Especially for students of medicine. Prerequisite: German 2b or equivalent. 9 TT. Miss Ernst.

44. GERMANY OF TODAY. Yr; 2 cr. Reading and discussion of books, newspapers, and periodicals. Primarily for students in journalism and commerce. Prerequisite: German 2b or equivalent. 11 TT. Mr. von Grueningen.

80. SUPERVISED INDIVIDUAL READING. Yr; 2 or 3 cr. For upper-group students who have passed the "intermediate" test or have had 2 years of German and desire further practice in reading, not in German literature, but in subject matter related to their major field of study, e.g., history, philosophy, other literatures, economics, or the sciences. Texts of general and not too technical character are to be agreed upon in consultation with the student's major professor. Each individual arrangement requires the approval of the Dean and of the Chairman of the German Department. Maximum number of credits: six.

100. SENIOR THESIS. Yr; 2 cr. Students must register with the chairman of the department either in the second semester of their junior year or at the beginning of the senior year. The executive committee of the department will decide whether a student is to be required to write a thesis or assigned to a substitute course in the 100-group of courses.

112. ADVANCED COMPOSITION AND CONVERSATION. II; 2 cr. For students who have a good command of German grammar and fair conversational ability and who wish to achieve fluency and ease in the writing and speaking of

German. Strongly recommended to teaching candidates working for an M.A. degree. 2:30 TT. Mr. Roeseler.

212. EXERCISES IN GERMAN STYLE. I; 2 cr. Translation of distinguished modern English prose into German; free composition. Mr. Roeseler.

SUPPLEMENTARY COURSES

60. WAGNER'S MUSIC DRAMAS. Lectures, readings. I; 2 or 3 cr. Prerequisite: German 2b (or intermediate examination). Not offered 1938-39. Miss Hinz.

75. GERMAN CLASSICS IN ENGLISH TRANSLATION. See Comparative Literature 75. Does not count toward the German major.

110. GERMAN CIVILIZATION. Yr; 2 cr. A study of characteristic periods and movements of the cultural development of Germany, with lectures in German on the general history of German civilization. Considerable outside reading. Especially recommended to prospective teachers of German. Offered 1938-39 and in alternate years. 11 MW. Mr. Roeseler.

210. BACKGROUNDS OF GERMAN LITERATURE. I; 2 cr. Assigned readings and weekly discussion group meetings on the relations of German literature to German art, music, philosophy; political, economic, and social history. Offered 1938-39. Mr. Rehder.

GERMAN LITERATURE—GROUP A

The courses in Group A are intended primarily for students who have had German 2b or its equivalent. Students having already four credits in advance of German 2b will be required to do additional work to receive full credit.

German is used to some extent as the language of the classroom in these courses.

20. CLASSICAL AND MODERN WRITERS. Yr; 3 cr. Prerequisites: German 2a; grade-point average of 2 in German. Mr. Twaddell, Mr. Rehder, Miss Hinz, Mr. Riegel, Mr. Salinger.

22. READINGS IN PROSE FICTION OF THE 19TH AND 20TH CENTURIES. Yr; 3 cr. Prerequisite: German 2b. Mr. Riegel, Mr. Salinger.

23. READINGS IN THE DRAMA OF THE 19TH AND 20TH CENTURIES. Yr; 3 cr. Prerequisite: German 2b. Mr. Workman.

GERMAN LITERATURE—GROUP B

These courses are open to students who have had six credits in Group A (with a grade-point average of 1.5) and German 25 (or a qualifying grammar examination.) German is used as the language of the classroom even more than in Group A.

101. ELEMENTARY SURVEY. II; 3 cr. Lectures (in English) on the history of German literature; readings on the history of literature, study of characteristic works, in full or in extract. Not intended for students required or otherwise planning to take course 131. Offered 1938-39. Mr. Twaddell.

102. THE CLASSICAL PERIOD. Yr; 2 or 3 cr. Class reading in drama and lyric, outside reading in the novel, written reports. Offered 1938-39. Miss Kittel.

103. The Nineteenth Century. Yr; 2 or 3 cr. Class reading in drama and lyric, outside reading in the novel, written reports. Not offered 1938-39. Mr. Bruns.

104. Contemporary Literature. I; 2 or 3 cr. Class reading in drama and lyric, outside reading in the novel, written reports. Offered 1938-39. Mr. Barnstorff.

105. Schiller. Sem; 3 cr. Not offered 1938-39. Mr. Workman.

106. Grillparzer. I; 3 cr. Offered 1938-39. Mr. Salinger.

107. Hebbel. II; 3 cr. Offered 1938-39. Mr. Bruns.

108. Keller. II; 3 cr. Offered 1938-39. Mr. Riegel.

109. Hauptmann. Sem; 3 cr. Not offered 1938-39. Mr. Barnstorff.

GERMAN LITERATURE—ADVANCED COURSES

130. Goethe. Yr; 3 cr. A general study of Goethe's life and works. Not offered 1938-39. Mr. Bruns.

131. Survey of German Literature. Yr; 2 or 3 cr. Lectures in German, with outside reading of representative works from the eighth century to the present. Emphasis on the relation of literature to other fields of German culture and to the literatures of England and France. Required for the teaching major and for the M.A. 9 MWF. Mr. Bruns.

134. Lyric Poetry, 1750 to the Present. Yr; 3 cr. The development of German lyric poetry with special emphasis on parallel movements in art and philosophy. Introduction to modern German metrics. Lectures in German, assigned reading, and semester topics. Offered 1938-39 and in alternate years. 11 TT. Mr. Bruns.

135. Prose Fiction of the Nineteenth Century. I; 3 cr. A study of the significant periods and figures in the evolution of the German *Novelle* during the 19th century, together with an evaluation of German national life as interpreted by the leading novelists like: Keller, Meyer, Stifter, Heyse, Raabe, Storm. Lectures on the development of the novel. Not offered 1938-39. Mr. Roeseler.

136. Prose Fiction of the Twentieth Century. II; 2 cr. A study of the significant periods and figures in the evolution of the German *Novelle* in the 20th century, together with an evaluation of German life as interpreted by the leading novelists, such as: Binding, Carossa, Kolbenheyer, Kröger, H. Hesse, T. Mann, Agnes Miegel, W. Schäfer, Stehr, S. Zweig, and others. Not offered 1938-39. Mr. Roeseler.

140. German Literary Theory and Criticism. Yr; 2 cr. History of German criticism, with attention to foreign influences upon the theory of literature. Not offered 1938-39. Mr. Bruns, Mr. Rehder.

142. The Drama of the Nineteenth Century. Yr; 2 cr. Lectures in German, assigned reading, and semester topics. Not offered 1938-39. 11 TT. Mr. Bruns.

180. Special Reading. Advanced study in a special field of literature or language under the guidance of a member of the department. Credit and conference hours to be arranged. Candidates should consult the chairman

of the department. Open only to upper-group majors in the department. See section 20, page 66.

200. INDIVIDUAL RESEARCH. Investigations not related to any particular course or seminary, carried on in consultation with a member of the department. Credit and conference hours to be arranged. Candidates should consult the chairman of the department.

219. GERMAN LITERATURE FROM THE BEGINNINGS TO 1400. II; 3 cr. Lectures on the development of the literary types; the social backgrounds of writings in the vernacular; the emergence of belles lettres with chivalry; the major figures and the literary trends. Readings in early German literature. Prerequisite: German 151. Not offered 1938-39. Mr. Twaddell.

220. GERMAN LITERATURE 1400-1750. II; 3 cr. The literature of the Renaissance, Reformation, Baroque, and Aufklärung. Lectures and readings. Offered 1938-39. Mr. Rehder.

246. BIBLIOGRAPHY AND METHODS. I; twice a week; 1 cr. Required of all members of the proseminary or seminary in literature. 11 MW. Mr. Bruns.

247. PROSEMINARY IN GERMAN LITERATURE. Yr; 2 cr. Investigation of limited compass to prepare graduate students for the more advanced work of the seminary proper. 4-6 W. Mr. Rehder.

248. SEMINARY IN GERMAN LITERATURE. Yr; 2 cr. In 1938-39 the work will be in the field of the German drama of the 19th century. 4-6 Th. Mr. Bruns.

GERMAN PHILOLOGY

Courses 155 and 158 are given partly in German and partly in English, courses 154 and 191 in English, the others in German.

150. HISTORY OF THE GERMAN LANGUAGE. II; 2 cr. Lectures on the development of the German language, its sounds, forms and vocabulary. Reading of typical texts. 9 TT. Mr. Twaddell.

151. ELEMENTARY MIDDLE HIGH GERMAN. I; 2 cr. Study of the *Nibelungenlied* as an introduction to the historical study of the German language. 9 TT. Mr. Heffner.

152. ADVANCED MIDDLE HIGH GERMAN. I; 2 cr. Rapid reading course. Not offered 1938-39.

153. EARLY MODERN HIGH GERMAN. II; 2 cr. Not offered 1938-39.

154. GOTHIC. I; 2 cr. Grammar and readings from the gospel as an introduction to the study of the old Germanic dialects. Not offered 1938-39. Mr. Heffner.

155. OLD HIGH GERMAN. II; 2 cr. Readings, phonology, morphology, dialects. Offered 1938-39. Mr. Heffner.

158. OLD SAXON. I; 2 cr. Not offered 1938-39. Mr. Twaddell.

191. PHONETICS. I; 2 cr. With special reference to the teaching of German. Mr. Heffner.

260. GERMAN DIALECTS. I; 2 cr. Lectures, readings, and discussions on the linguistic characteristics of the various dialects, with a survey of the principal literary documents of the various speech-provinces. Not offered 1938-39.

261. HISTORICAL GRAMMAR OF THE GERMAN LANGUAGE. I; 2 cr. Offered 1938-39. Mr. Twaddell.

269. PHILOLOGICAL PROSEMINARY. II; 2 cr. 1938-39: Introduction to Germanics. Mr. Heffner.

270. PHILOLOGICAL SEMINARY. Yr; 2 cr. The work of the seminary varies from year to year. 1938-39: I, Hildebrandslied; II, Meier Helmbrecht. 4-6 Tu. Mr. Heffner.

HISTORY

JOHN DONALD HICKS, Ph.D., *Professor of History, Chairman* (1938-39)
CHESTER PENN HIGBY, Ph.D., *Professor of History*
PAUL KNAPLUND, Ph.D., *Professor of History* (on leave I)
CURTIS PUTNAM NETTELS, Ph.D., *Professor of History*
GEORGE CLARKE SELLERY, Ph.D., LL.D., *Professor of History*
CHESTER VERNE EASUM, Ph.D., *Associate Professor of History*
WILLIAM BEST HESSELTINE, Ph.D., *Associate Professor of History*
GAINES POST, Ph.D., *Associate Professor of History*
ROBERT LEONARD REYNOLDS, Ph.D., *Associate Professor of History*
CHARLES FARWELL EDSON, JR., Ph.D., *Acting Assistant Professor of History*
FRED HARVEY HARRINGTON, Ph.D., *Instructor in History*
WILLIAM L. SACHSE, Ph.D., *Instructor in History*

When history is offered as one of the required studies in the general course leading to the degree of Bachelor of Arts (see page 67), the requirement must be satisfied by a continuous three-credit course extending through two semesters.

The courses in history are divided into three groups: (a) Courses numbered under 100 carry only undergraduate credit. The introductory courses 1, 2, 3, 5, and 10 (see details below) are the courses open to freshmen. (b) Courses numbered in the 100-series continue in the direction of greater specialization the work begun in the introductory courses; they may be elected by students who have the necessary preparation. (c) Courses numbered above 200 are open only to graduate students.

MAJOR FIELDS OF CONCENTRATION.

(a) European History.
(b) American History.
(c) History of Culture.
(d) Hispanic Studies (See page 60).

Students with a major in Social Sciences electing to work in history will elect one of these fields of concentration, and offer not less than 32 nor more than 40 credits in history, including History 2 or 3b,* or 138 or 139, one other introductory course (History 1, 3,* 5, or 10), History 4 (6 credits), and at least 16 credits in advanced history courses taken in the University of Wisconsin, of which 10 must be confined to European history or American history, except as specified below for Field of Concentration (c).

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

Field of Concentration (c) requires either (I) History 1 or 5 (4 or 6 credits), History 10 (4 or 6 credits), and History 2 (4 or 6 credits) or History 4 (6 credits); or (II) History 3 (10 credits) and History 10 (4 credits) or History 4 (6 credits), and advanced history courses up to the minimum of 32 credits. It also requires an attainment examination in Latin and in one modern language, and contemplates a supervised selection of courses in non-historical subjects within the field of concentration. It is preferable for majors in this field to select their major in their sophomore year.

Of the 16 credits in advanced courses, 2 credits in each semester of the senior year may, in the judgment of the adviser, be assigned to the preparation of a thesis (History 100-A) or a thesis course (History 100-B) in the field of concentration. In addition to the courses in history, the major in Fields of Concentration (a) and (b) requires Economics 1a and Political Science 1 or 7; and Sociology 110 (Pre-History) and Geography 1-2 are strongly recommended.

A major in Social Sciences who elects (a), (b), or (c) as his field of concentration may be admitted to advanced independent work at the beginning of his junior year provided that (1) he has a 2.5 grade-point average for his first two years; (2) he has completed the required freshman and sophomore work in history; and (3) he is recommended for independent work by three of his sophomore instructors of whom one must be a member of the Department of History.

TEACHING MAJOR AND MINOR. See Bulletin of the School of Education.

I. INTRODUCTORY COURSES

Open to Freshmen

Students may take only one of the courses 1, 2, 5, or 10 for three credits a semester, since each contains introductory training for which credit will not be given twice; that is, if they have had or are taking one of these courses for three credits at the Unversity of Wisconsin (which includes the Extension Division and the Milwaukee Extension Center), another, elected at the same time or thereafter, may be taken from this group for two credits a semester only, omitting the supplementary reading and a topical report, but if only one of these courses is taken, it must be for three credits per semester throughout the year. Advanced students who have fulfilled the six-credit option in history for the B.A. degree or who are not registered in the College of Letters and Science may take any of these four introductory courses for two credits each semester. Students who take History 3 cannot elect History 1 or 2; they may take History 5 or 10, each for 2 credits a semester.

1. MEDIEVAL HISTORY. Yr; 3 or 2 cr. Course in Humanities students who elect this course must take it for 4 credits, but only such students may take it for 4 credits. 10 MW; quiz. Mr. Reynolds and staff.

2a-b. MODERN EUROPEAN HISTORY. Yr; 3 or 2 cr. A survey of the principal developments in the history of Europe from 1492 to the present. 8 TT; quiz. Mr. Higby and staff.

2b-a. MODERN EUROPEAN HISTORY. Yr; 3 or 2 cr. This course commences in the second semester, but is otherwise identical with History 2a-b. 1:30 MW; quiz. Mr. Harrington.

3. EUROPEAN CIVILIZATION SINCE THE FALL OF ROME. Yr; 5 cr. An introduction to the cultural and intellectual as well as the institutional and economic history of modern Europe. 9 MWF; two quizzes. Mr. Post, Mr. Easum, and staff.

5. English History. Yr; 3 or 2 cr. The political, constitutional, economic, and social development of England; the relations between England, the other parts of the British Isles, and the continent of Europe; and the imperial expansion. Course covers period from pre-historic times to the present. 10 TT or 1:30 TT; quiz. Mr. Easum, Mr. Knaplund, Mr. Sachse, and staff.

10. Ancient History. Yr; 3 or 2 cr. A survey of the history of civilization from the beginnings in Egypt and Babylonia to the collapse of the Roman Empire in the west. 9 TT; quiz. Mr. Edson.

Not Open to Freshmen

4a-b. History of the United States, 1763-1939. Yr; 3 cr. A general survey of American social, political, and economic development. Special conference sections on the relations of American literature and American education to political and social events. Prerequisite: Sophomore standing. 11 MWF. Mr. Hesseltine and staff.

II. TRAINING COURSES AND SPECIAL WORK

100-A. Senior Thesis. Yr; 2 cr.

100-B. Thesis Course. Yr; 2 cr. Prerequisites: Senior standing; major in history.

180. Special Work. Upper-class history major students of known capacity, may, by agreement with the major professor, arrange for special out-of-class work, for which credit may be allowed, during the recesses of the University, on the basis of one credit for each week, or its equivalent, devoted exclusively to the special project. Open only to upper-group majors in the department by consent of instructor. See section 20, page 66.

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

252. Historical Method. Yr; 1 cr. First semester: historical bibliography, sources, and criticism; second semester: historiography. Graduate students in their first year are expected to take this course. 3:30 W. Mr. Post and others.

280. Special Work. During the recesses of the University, and in regular terms, by agreement with the major professor, properly qualified graduate students may undertake special out-of-class work, generally upon research problems, for which credit may be allowed on the basis of one credit for each week, or its equivalent, devoted exclusively to the special project.

The Teaching of History and the Social Studies. See Educational Methods 84, bulletin of the School of Education.

Practice Teaching in History on the College Level. See Educational Methods 184, bulletin of the School of Education.

Advanced Course in the Teaching of History and the Social Studies. See Educational Methods 185, bulletin of the School of Education.

III. ANCIENT AND MEDIEVAL HISTORY

126. Life and Work in Ancient Rome. See VI, Economic and Social History.

127. Greek and Helenistic Civilization. I; 3 cr. Prerequisite: Junior standing or consent of instructor. 9 MWF. Mr. Edson.

131. Medieval Civilization. I; 3 cr. The nature and direction of the civilization of the twelfth and thirteenth centuries. Prerequisites: History 1, 3, or 5, and junior standing. Not offered 1938-39. 10 TT; conference. Mr. Sellery.

132. History of Italy to the Eighteenth Century. I; 3 cr. History of the Italian people, with emphasis upon their contributions in the economic, cultural, and political fields, from the later Roman Empire to the eighteenth century. Prerequisite: Introductory course in European history. Not offered 1938-39. 11 MWF. Mr. Reynolds.

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

134. The Renaissance. I; 3 cr. The various elements contributing to the development of European civilization in the fourteenth and fifteenth centuries, with stress on the drive on non-humanistic life. Prerequisites: History 1, 2, 3, or 5, and junior standing. In 1939-40, offered the second semester. 10 TT; conference. Mr. Sellery.

135. Byzantine Civilization. Yr; 2 cr. Prerequisite: Junior standing or consent of instructor. 10 WF.

141. English Constitutional History. Yr; 3 cr. The government and law of England from the earliest times to the rise of the cabinet system. Prerequisite: History 1, 2, 3, or 5. 2:30 MWF. Mr. Sachse.

164. History of Exploration and Geographical Discoveries, 1200-1700. II; 3 cr. The literature on medieval and early modern explorations in Asia, Africa, and the New World. The economic and political consequences of the "expansion of Europe." Prerequisite: History 1, 2, 3, or 5, or junior standing. 11 MWF. Mr. Reynolds.

253. Latin Paleography. I or II; 1 cr. Elements of paleography, with practical exercises in reading of manuscripts. Prerequisite: Graduate standing. Hours to be arranged. Mr. Post, Mr. Reynolds.

254. Seminary in Ancient History. Yr; 2 cr. Prerequisite: A reading knowledge of Greek and Latin. Not offered 1938-39.

257. Seminary in Medieval History. Yr; 2 cr. Studies in the economic history of the Middle Ages. Prerequisite: A reading knowledge of Latin, French, and German. 3:30-5:30 Th. Mr. Reynolds.

IV. MODERN HISTORY

130. History of Spain, 1000-1825. II; 3 or 2 cr. The evolution of the political, social, economic, and cultural life of the Spanish people and nation in the Old World from the Reconquest to the collapse of the Spanish Empire in the New World. Prerequisite: History 1, 2, 3, 5, or 10, or junior standing. 9 TT; conference. Mr. Post.

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

136. History of France, 987-1789. Yr; 3 or 2 cr. The political, social, economic, and cultural development of the French Nation in the period of the

monarchy. Prerequisite: History 1, 2, 3, 5, or 10, or junior standing. 11 TT. Mr. Post.

138a. The French Revolution and the Napoleonic Period, 1789-1815. I; 3 cr. A study of the effect of the French Revolution and the Napoleonic period on the institutions and conditions of Europe. Prerequisite: Junior standing or consent of instructor. Not offered 1938-39. 11 MWF. Mr. Higby.

138b. History of Europe, 1815-1871. II; 3 cr. A study of the effect of the rise of nationalism, liberalism, and the new economic forces upon Europe and European society. Prerequisite: Junior standing or consent of instructor. Not offered 1938-39. 11 MWF. Mr. Higby.

139a. The Age of Imperialism, 1871-1918. I; 3 cr. A study of the expansion and rivalries of the nations of Europe during this period. Prerequisite: Junior standing or consent of instructor. 11 MWF. Mr. Higby.

139b. Recent and Contemporary European History, 1918-1939. II; 3 cr. A study of the World War and its aftermath. Prerequisite: Junior standing or consent of instructor. 11 MWF. Mr. Higby.

142. History of England, 1485-1760. Yr; 3 cr. The first semester covers the Tudor period, and the second is devoted to the Stuarts and the early Hanoverians. The course surveys the political, economic, and social issues and problems; the relations with Ireland and Scotland; the background for England's trade and colonial expansion; foreign relations and foreign policy. Prerequisite: Junior standing. Not offered 1938-39. Mr. Sachse.

143. The British Empire Since 1815. Yr; 3 cr. Imperial expansion and imperial policy. Growth of the Dominions; relations with India; the dependent Empire. The Empire and Commonwealth in our own age. Prerequisite: History 5 or junior standing. Not offered 1938-39. 9 TT; conference. Mr. Knaplund.

144. Sixteenth-Century Civilization. II; 3 cr. The conflict of secular and religious forces, 1500-1600; with stress on the advance of secular life. Prerequisites: History 1, 2, or 3, and junior standing. 10 TT; conference. Mr. Sellery.

146. History of the German People. Yr; 2 or 3 cr. First semester: a survey of medieval German history; then a study of the Renaissance and Reformation in Germany, and of the Thirty Years' War. Second semester: German history from the time of the Great Elector to the completion of unification, with special attention to the rise of Prussia. Prerequisite: History 1, 2, 3, 5, or 10, or junior standing. 1:30 TT. Mr. Easum.

150. Political and Diplomatic History of the British Isles, 1760 to the Present. Yr; 3 cr. The development of political democracy and democratic institutions. Ireland and England. Britain's foreign relations and foreign policy. Prerequisite: History 5 or junior standing. 9 TT; conference. Not offered first semester 1938-39. Mr. Knaplund.

151. Economic and Social History of the British Isles, 1760 to the Present. See VI, Economic and Social History.

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

178. Recent German History. Yr; 2 or 3 cr. First semester: the Hohenzollern Empire; its constitution and history, its colonial enterprises, and its position in world trade and world politics. Second semester: war-time and post-war Germany; the republic and the Third Reich. Prerequisites: History 2, 3, or 146, and junior standing. Not offered first semester, 1938-39. 11 TT. Mr. Easum.

258. Seminary in History of the British Empire. Yr; 2 cr. A study of aspects of British imperial history. For the year 1938-1939 the topic will be Anglo-German relations from 1870 to the present. 1:30-3:30 Tu. Mr. Easum, Mr. Knaplund.

267. Seminary in Modern European History. Yr; 2 cr. 2:30-4:30 M. Mr. Higby.

V. AMERICAN HISTORY

111. History of the West, 1763-1893. See VI, Economic and Social History.

113. American Social History. See VI, Economic and Social History.

114. Sectionalism and the Civil War. I; 3 or 2 cr. The conflict between rising industrialism and the plantation; the Old South and the abolition crusade; the struggle for the territories; secession; economic and social significance of the Civil War. Prerequisite: Junior standing. 1:30 MWF. Mr. Hesseltine.

115. The American Revolution and the Constitution, 1760-1789. II; 3 or 2 cr. This course deals with the economic, political, and social causes of the Revolution, its military, diplomatic, economic, and political aspects; the problems of the "Critical Period"; and the making of the Constitution. Prerequisite: Junior standing. 10 TT; conference. Mr. Nettels.

116. History of the Thirteen Colonies to 1760. I; 3 or 2 cr. This course deals with the founding of the English colonies in America; their government, economy, and social structure; their relations with England; their internal conflicts; and the conflicts of England with Holland, Spain, and France in America. Prerequisite: Junior standing. 10 TT; conference. Mr. Nettels.

117a. Origin and Growth of the Constitution (1700-1835). I; 3 or 2 cr. Colonial background of American governments; the Philadelphia Convention; rival theories of constitutional interpretations; the Supreme Court and the Constitution to the death of Marshall. Prerequisite: Junior standing. Not offered 1938-39. 1:30 MWF. Mr. Hesseltine.

117b. The Constitution in American Development (1835-1939). II; 3 or 2 cr. The constitutional aspects of the sectional controversy and the Civil War; new economic forces and a changing constitution; trust regulation; progressive movement; the Supreme Court and social legislation; recent constitutional controversies. Prerequisite: Junior standing. Not offered 1938-39. 1:30 MWF. Mr. Hesseltine.

118. Reconstruction and the New Nation. II; 3 or 2 cr. Aftermath of the Civil War; reconstruction of the South; economic consequences of the War; the Grant era; the New South; the continuance and decline of sectionalism. Prerequisite: Junior standing. 1:30 MWF. Mr. Hesseltine.

119. LATIN-AMERICAN HISTORY. Yr; 3 or 2 cr. A survey of political, economic, and cultural institutions and developments in the pre-Columbian, colonial, and republican periods. Prerequisite: Junior standing. 8 MWF. Mr. Harrington.

120. AMERICAN FOREIGN RELATIONS, 1775-1939. Yr; 3 or 2 cr. A study of the United States in its relations with the outside world, emphasizing public opinion and the economic, social, and political forces that have determined American foreign policy. Prerequisite: Junior standing. 2:30 MWF. Mr. Harrington.

122. HISTORY OF AMERICAN ECONOMIC LIFE, 1607-1939. See VI, ECONOMIC AND SOCIAL HISTORY.

124. RECENT HISTORY OF THE UNITED STATES, 1873-1939. Yr; 3 or 4 cr. The economic, social, and political history of the United States from the Panic of 1873 to the present. Prerequisite: Junior standing. 11 MWF. Mr. Hicks.

261. SEMINARY IN AMERICAN HISTORY. Yr; 2 cr. Studies in social and economic problems of the Civil War and Reconstruction periods or in constitutional history. 3:30-5:30 M. Mr. Hesseltine.

262. SEMINARY IN AMERICAN HISTORY. Yr; 2 cr. Studies in recent and in western history. 3:30-5:30 Tu. Mr. Hicks.

263. SEMINARY IN AMERICAN HISTORY. Yr; 2 cr. Studies generally relating to American economic history or to the history of the English colonies in America. 3:30-5:30 Tu. Mr. Nettels.

VI. ECONOMIC AND SOCIAL HISTORY

111. HISTORY OF THE WEST, 1763-1893. I; 3 or 4 cr. The advance of settlement from the Appalachians to the Pacific, with particular attention to the effect of the West upon economic and social conditions in the country as a whole. Prerequisite: Junior standing. 9 MWF. Mr. Hicks.

113. AMERICAN SOCIAL HISTORY. II; 3 or 4 cr. The everyday life of Americans, together with their developing cultural, intellectual, and institutional interests, from the seventeenth century to the present. Prerequisite: Junior standing. 9 MWF. Mr. Hicks.

122. HISTORY OF AMERICAN ECONOMIC LIFE, 1607-1939. Yr; 3 or 2 cr. The first semester covers the period from 1607 to 1860, and deals with the history of production, commerce, and finance in the United States, and of the influence of economic forces on politics, social conflicts, and public policy. The second semester covers the period from 1861 to 1939, and deals with the rise and organization of Big Business, imperialism, public control of industry, the World War, the business cycle, and the New Deal. Prerequisite: Junior standing or History 4. 10 MWF. Mr. Nettels.

126. LIFE AND WORK IN ANCIENT ROME. II; 2 cr. Prerequisite: Junior standing or consent of instructor. 9 WF.

133. ECONOMIC LIFE IN EUROPE. I; 3 cr. Agriculture, industry, and commerce in the Middle Ages and early modern period. Prerequisite: History 1, 2, 3, 5, or 10, or junior standing. In 1939-40, offered the second semester. 11 MWF. Mr. Reynolds.

151. Economic and Social History of the British Isles, 1760 to the Present. Yr; 3 cr. The economic revolution of the eighteenth century. Industrial changes, transportation, commerce. Economic and social problems. The policy of the government. Prerequisite: History 5 or junior standing. Not offered 1938-39. 9 TT; conference. Mr. Knaplund.

IRISH

Myles Dillon, Ph.D., *Professor of Gaelic and Irish History and Literature*

The elementary courses in Irish are for beginners, but some training in grammar, preferably knowledge of a foreign language, is desirable.

See page 57 for attainment tests which may, at the option of the student, be substituted for the required number of credits in meeting the language requirements for the bachelor's degree. Lists of suggested readings in preparation for the proficiency test may be obtained from the departmental office.

1. Elementary Modern Irish. Yr; 4 cr. Elementary grammar and syntax, with translation and prose composition. 1:30 MTWT. Mr. Dillon.

110. Advanced Modern Irish. Yr; 3 cr. Prerequisite: Irish 1 or consent of instructor. Classical Modern Irish prose, Bardic Poetry, the Fenian Cycle. 2:30 MWF. Mr. Dillon.

131. Elementary Old Irish. I; 3 cr. Prerequisite: Senior or graduate standing. Selections from the Old Irish glosses and from Táin Bó Cualnge. Simple exercises in translation.

132. Middle-Irish Texts. II; 3 cr. Prerequisite: 131 or consent of instructor. Early prose and verse. The Ulster Cycle. 11 TTF. Mr. Dillon.

133. Introduction to Irish Studies. See Comparative Literature 133. Does not give credit in Irish.

201. Irish Seminary. Yr; 2 cr. Advanced work in Old and Middle Irish.

205. Introduction to Medieval Welsh. Not offered 1938-39. Mr. Dillon.

208. Introduction to the Comparative Grammar of the Celtic Languages. Not offered 1938-39. Mr. Dillon.

JOURNALISM

Grant Milnor Hyde, M.A., *Professor of Journalism, Chairman*
Frank Thayer, M.A., J.D., *Associate Professor of Journalism*
Helen Marguerite Patterson, M.A., *Assistant Professor of Journalism*
Robert Miller Neal, M.A., *Assistant Professor of Journalism*
William Allison Sumner, Ph.M., *Professor of Agricultural Journalism*
Henry Ladd Smith, M.A., *Lecturer in Journalism*

Purpose and Plan. The courses in journalism are designed to give the student instruction and practice in newspaper writing and editing, in some kinds of magazine writing, and in advertising, as well as to present current problems of journalism in the light of their origin and development. They have been arranged to meet the needs of students in the School of Journalism, and of those in the College of Letters and Science, Agriculture, and Engineering who desire training in journalistic writing.

LABORATORY EQUIPMENT. The department has a large laboratory equipped like the city room of a newspaper office, with typewriters, reference books, maps, and a copy-desk. Adjoining this are a reading room with current files of representative American newspapers and journalistic periodicals, and a lecture room. Full leased wire telegraph news service is furnished by one of the press associations for practice in editing telegraph copy. To familiarize students of journalism with the principles of typography, the department has a typographical laboratory for practical work in connection with the courses in editing, advertising, and newspaper administration. A photographic laboratory and a department library are also available.

FEES. A laboratory fee of $1.00 per semester is charged each student taking courses in journalism, except those taking only Journalism 1, 201, 202, or 203; additional fees of $1.50, $1.00 and $2.50 are charged in Journalism 3, 4, and 10.

MAJOR. The undergraduate major in journalism is offered only to candidates for the degree of Bachelor of Arts (Journalism). It requires not less than 30 credits, as outlined under the heading, School of Journalism, on page 90.

*1. GENERAL SURVEY OF JOURNALISM. Yr; 1 cr. Required of freshmen in the pre-journalism sequence. Practical talks on the character and scope of journalistic work, including a consideration of newspapers, magazines, technical and trade journals, agricultural publications, advertising, etc. 2:30 Tu. Mr. Hyde.

2. NEWSPAPER REPORTING AND CORRESPONDENCE. Yr; 3 cr. Lectures and practice on the work of the reporter and the correspondent, including news gathering and writing. Students cover at least one newspaper assignment each week and attend a weekly one-hour discussion group led by an instructor. Required of all students in the School of Journalism excepting those in the Journalism-Advertising Group, who may take the first semester only. 10 or 11 MWF; discussion. Mr. Hyde, Mr. Neal, and staff.

*3. EDITING. Yr; 3 cr. Prerequisite: Nine grade-points in Journ. 2. 8 Tu. and lab. Additional lab. fee $1.50 per semester. Mr. Neal and staff.

*4. ADVERTISING TYPOGRAPHY. II; 1 cr. Two hours a week of instruction and laboratory work in the typography of advertisements. Required of students in the Journalism-Advertising Group. Additional lab. fee $1.00. Mr. Foss.

*6. ENGLISH IN BUSINESS. I, II; 3 cr. (See Commerce 6.)

*7. THE COMMUNITY NEWSPAPER. I; 2 cr. Open only to juniors and seniors. 11 TT. Mr. Sumner.

10. NEWS PHOTOGRAPHY. I, II; 1 cr. Study of special problems of photography for newspapers and magazines, with practice in use of various cameras. Class limited to 15 journalism juniors and seniors. 1:30-4:30 F. Additional lab. fee $2.50. Mr. Smith.

*13. MARKETING METHODS. (See Commerce 13.)

*Does not count toward the requirements for graduation from the College of Letters and Science except for students in the School of Journalism, and in other special courses as follows: Journalism 3 and 108 count also in the School of Commerce.

*15. PRINCIPLES OF ADVERTISING. (See Commerce 15.)

100. SENIOR THESIS. Yr; 4 cr. Staff.

101. JOURNALISTIC STYLE. I; 2 cr. An analysis of the elements and qualities of style peculiar to journalistic writing; vocabulary building. Open to juniors and seniors. 10 MW. Miss Patterson.

104. EDITORIAL WRITING. 1; 2 cr. Theory and practice of editorial writing; analysis of editorial policy; interpretation of current news. Prerequisites: Journalism 2 and 3. 9 TT. Mr. Thayer.

105a. WRITING OF SPECIAL ARTICLES. I; 2 cr. Lectures and practice in preparing special articles for newspapers and magazines. Not open to students below the junior year. Prerequisite: Journalism 2. 10 or 11 TT. Miss Patterson.

105b. MAGAZINE FEATURE WRITING. II; 2 cr. Practice in preparing periodical articles on technical, scientific, engineering, and economic subjects. Each student will specialize in one field throughout the semester. Prerequisite: Junior standing, Journalism 105a, or consent of instructor. Mr. Thayer.

106. CRITICAL WRITING. II; 2 cr. The function of criticism in journalism; reviewing of motion pictures, plays, concerts, and books for newspapers. Open to juniors and seniors. 10 MW. Miss Patterson.

107. TECHNICAL AND TRADE JOURNALISM. II; 2 cr. Analysis of the primary problems in editorial and business management of trade journals, house organs, and business papers. 8 WF. Mr. Thayer.

108. NEWSPAPER BUSINESS MANAGEMENT. II; 2 cr. Open only to juniors and seniors. 11 TT. Mr. Thayer.

109. THE LAW OF THE PRESS. I; 1 cr. Lectures and readings on libel, constitutional guarantees, copyright, and other phases of the laws affecting newspapers and periodicals. Required of all seniors in the School of Journalism. Prerequisites: Journalism 2 and 3. 2:30 Th. Mr. Thayer.

110. HISTORY OF JOURNALISM. I; 3 cr. A study of the evolution of the newspaper in England and the United States, with special reference to the problems of present-day journalism. Required of all seniors in the School of Journalism. Prerequisites: Journalism 2 and 3. 9 MWF. Mr. Hyde.

110. RADIO SPEAKING. (See Speech 110.)

111. INFLUENCE OF THE NEWSPAPER. II; 3 cr. Lectures, reading, and discussion on the relation of the newspaper to government and society; the influence, ethics, and psychology of journalism. Required of all seniors in the School of Journalism. 9 MWF. Mr. Hyde.

112. REPORTING THE LAW COURTS. II; 2 cr. Instruction and practice in the methods of reporting local, state, and federal courts; municipal, state, and federal administration; bankruptcy, politics, finance, and public affairs. Prerequisites: Journalism 2 and 3. 9 TT. Mr. Thayer.

*116. PROBLEMS IN NATIONAL ADVERTISING. (See Commerce 116.)

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*Does not count toward the requirements for graduation from the College of Letters and Science except for students in the School of Journalism, and in other special courses as follows: Journalism 3 and 108 count also in the School of Commerce.

120. Comparative Journalism (Interpreting Foreign News). II; 2 cr. A study of the press of other countries, throughout the world, and the activities of American newspapers and press agencies in gathering foreign news. Consideration of censorship, ownership of communications and other obstacles to free flow of world news. Prerequisite: Junior standing. 2:30 TT. Mr. Neal.

121. Interpreting Hispanic Affairs. Yr; 1 cr. I. Spain, Mr. Cool. II. Spanish America, Mr. Neale-Silva. 10 F.

123. Women's Fields in Newspapers and Magazines. II; 2 cr. The writing and editing of material for women's departments in newspapers and magazines. Analysis of the fields open to women in journalism. Prerequisite: Journalism 105. 10 TT. Miss Patterson.

125. Independent Reading. Yr; 1-4 cr. Mr. Hyde.

201. Seminary in Journalism. Yr; 2 cr. Subject for 1937-38: American newspapers of 1900-1910. Subject for 1938-39: American newspapers of 1890-1900. (Based on analysis of old files.) 3:30-5:30 Tu. Mr. Hyde, Mr. Thayer.

202. Seminary in Journalism. Yr; 2 cr. Subjects for 1937-38: I. Public opinion and the press; II. Propaganda and the press. Subjects for 1938-39: I. The press and the law courts; II. Legal aspects of crime news. 3:30-5:30 Th. Mr. Hyde, Mr. Thayer.

203. Seminary in Journalism. Yr; 2 cr. I. Newspaper reader interest; II. Psychology of journalistic style. 3:30-5:30 W. Mr. Sumner.

LATIN

(See Classics, page 120)

MATHEMATICS

Mark Hoyt Ingraham, Ph.D., *Professor of Mathematics, Chairman*
Rudolph Ernest Langer, Ph.D., *Professor of Mathematics*
Herman William March, Ph.D., *Professor of Mathematics*
Cyrus Colton MacDuffee, Ph.D., *Professor of Mathematics*
Ivan Stephan Sokolnikoff, Ph.D., *Associate Professor of Mathematics*
Herbert Pulse Evans, Ph.D., *Assistant Professor of Mathematics*
Stephen Cole Kleene, Ph.D., *Assistant Professor of Mathematics*

INSTRUCTORS

Florence Eliza Allen, Ph.D.
Churchill Eisenhart, Ph.D.
Bernard Friedman, Ph.D.
Donald Holmes Hyers, Ph.D.
Stanley Bartlett Jackson, Ph.D.
Richard Brandon Kershner, Ph.D.
Robert Wanner Wagner, Ph.D.
Lee Roy Wilcox, Ph.D.,

In this department, courses 1a, 1b, 2, 3, 5, 6, 7, and 31 are planned to give a working knowledge of elementary mathematics. Mathematics 7 is required of students in the School of Commerce.

In general students are required to present one full year of mathematics to satisfy the mathematics option for the B.A. degree. However, students who have successfully passed either Mathematics 2, or have had trigonometry in high-

school and have passed Mathematics 3, will be regarded as having fulfilled the mathematics option for the B.A. degree. If they complete the requirements of the School of Commerce, Mathematics 7 may be substituted for Mathematics 2 or 3. Mathematics 7 will not count towards the optional requirement for the B.A., B.S., or Ph.B. degree except for students graduating in the School of Commerce.

MAJOR IN MATHEMATICS. This field of concentration includes all courses taught by the Mathematics Department. The major comprises a minimum of 21 credits which shall consist of Course 5 (or 54 and 55); 6; and other courses in mathematics numbered 100 or above excluding Math. 135. Students majoring in this department must earn at least as many grade-points as credits in all work included in the major. Eligibility to write a thesis is based on a minimum of 9 credits in mathematics taken at the University of Wisconsin and is determined by the average number of grade-points per credit earned in the courses included in the major. Those whose average is less than 2.0 are not permitted to write theses; those with averages above 2.0 are subject to individual rulings by the department, with consideration given to the student's record and wishes. Students entering the junior class with advanced standing who expect to complete a major in mathematics in four semesters should previously have completed the equivalent of Mathematics 5.

MAJOR IN PHYSICS-MATHEMATICS. The courses listed below from (a) to (d) comprise the field of concentration in physics-mathematics. The major consists of the following courses, with a maximum of 40 credits in groups (a) through (d) and a grand total of not more than 50 credits, including group (e).

(a) Mathematics—algebra and trigonometry (which may be completed in high school); analytic geometry and calculus.

(b) Physics 1, 31, or 51-52—10 credits.

(c) A minimum of 6 credits selected from Mathematics 102a, 102b or 112, 104, 116, 117, 118 (102a and 102b refer to the first and second semesters respectively of Mathematics 102).

(d) A minimum of 6 credits selected from Physics 106, 112, 115, 116, 117, 118, 119, 124, 126, 134.

(e) A minimum of 6 credits selected from the following group of courses, which are within the division although not included within this field of concentration: Physics 102, 103, 104; Mathematics 101, 103; Metallurgy 135; Mechanics 101, 107; Electrical Engineering 116, 120, 155; Chemistry 130; Hydraulics 104, 115; Astronomy 6, 101, 102, 116.

THE JUNIOR MATHEMATICAL CLUB, open to all students interested in the subject, meets twice a month.

ELEMENTARY COURSES

1a. ALGEBRA. I, II; 4 cr. For students presenting one unit of algebra for entrance. May not be taken for credit by students who have had one and a half or two years of high-school algebra. Not open to students who have taken or are taking Mathematics 31. This course or Mathematics 31 is prerequisite to all other courses. Staff.

1b. ALGEBRA AND TRIGONOMETRY. I, II; 4 cr. Prerequisite: Math. 1a or two years of high-school algebra. The continuation of Math. 1a for students

presenting one unit of algebra for entrance. Not open to students who have taken or are taking Math. 31 or Math. 2. Staff.

31. ALGEBRA. I, II; 4 cr. For students presenting one and a half units of algebra for entrance. May not be taken for credit by students who have had two years of high-school algebra. Not open to students who have taken or are taking Mathematics 1a. This course or course 1a is prerequisite to all other courses. Staff.

2. TRIGONOMETRY AND ANALYTIC GEOMETRY. I, II; 4 cr. Prerequisite: Math. 31 or grade of A in Math. 1a. May be taken for 3 credits by students who have had a half year of high-school trigonometry. Staff.

3. ANALYTIC GEOMETRY. I, II; 3 cr. Prerequisite: Trigonometry. May not be taken for credit by students who have taken or are taking Math. 2. Staff.

5a. DIFFERENTIAL CALCULUS. I, II; 4 cr. Prerequisite (or co-requisite): Math. 2 or 3. Students who intend to major in mathematics or science are advised to take this course, together with 5b, in the sophomore year. Corresponds roughly to Math. 54, 4 cr., offered primarily for engineering students but open to others. Staff.

5b. INTEGRAL CALCULUS. I, II; 4 cr. Prerequisite: Math. 5a. Staff.

6. ANALYTIC GEOMETRY OF THREE DIMENSIONS. I, II; 3 cr. Prerequisite: Math. 5, 54, or concurrent registration. It is desirable for mathematics majors to take this course concurrently with course 5b. Staff.

7. THEORY OF INVESTMENT. I, II; 4 cr. Prerequisite: Math 1a, 31 or 51. Primarily for students in the pre-commerce sequence. Staff.

24. THEORY OF LIFE INSURANCE. II; 3 cr. Prerequisite: Math. 7 or concurrent registration. Staff.

31. ALGEBRA. (See second course in this list.)

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

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

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

54. DIFFERENTIAL AND INTEGRAL CALCULUS. I, II; 4 cr. Required of all sophomores in engineering. Mr. March and staff.

55. CALCULUS. I, II; 4 cr. Continuation of Math. 54. Required of all sophomores in engineering. Mr. March and staff.

71. MATHEMATICS FOR AGRICULTURAL STUDENTS. I; 4 cr. For students presenting one unit of algebra for entrance. Staff.

72. MATHEMATICS FOR AGRICULTURAL STUDENTS. I; 4 cr. For students presenting one and one-half units of algebra for entrance. Staff.

91. COLLEGE GEOMETRY. II; 2 cr. An extension of the procedure and content of Euclidean geometry. Open to juniors and seniors. May be counted toward the mathematics requirements for the teaching major and minor. Mr. Trump.

ADVANCED COURSES

These courses are offered every year unless an exception is specifically noted. Math. 5 or 55 is prerequisite to all courses in the following group, except 101.

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

101. ADVANCED COLLEGE ALGEBRA. Yr; 3 cr. An advanced course in algebra covering such topics as determinants, elimination, permutation and combinations, interpolation, and the theory of equations. Prerequisite: Mathematics 5b or concurrent registration. Mr. MacDuffee.

102. ADVANCED CALCULUS. Yr; 3 cr. A year course in analysis based on differential and integral calculus and containing the work usually given in advanced calculus and differential equations. Mr. Kershner.

103. ADVANCED GEOMETRY. Yr; 3 cr. The methods of elementary analytic geometry are extended to projective geometry; the synthetic viewpoint is also considered. Applications to rectilinear figures and conic sections. Prerequisite: Mathematics 6 or consent of instructor. Mr. Jackson.

104. THEORETICAL MECHANICS. Yr; 3 cr. Statics and dynamics of a particle and of a rigid body. Topics studied include velocity, acceleration, conditions of equilibrium, motion under constant and variable forces, the theory of the top. This course is to be regarded as generally introductory to courses in applied mathematics. Mr. March.

110. HIGHER MATHEMATICS FOR ENGINEERS. Yr; 3 cr. Mr. Sokolnikoff.

112. DIFFERENTIAL EQUATIONS. II; 3 cr. Primarily a working course for students in mathematics and physics. Staff.

116. HIGHER ANALYSIS. Yr; 3 cr. Not offered 1938-39. Mr. March.

117. VECTOR AND TENSOR ANALYSIS. I; 3 cr. Mathematics 117 and 217 form a year course. The first semester is devoted to the treatment of vectors and tensors of Euclidean and non-Euclidean manifolds. Not offered 1938-39. Mr. Sokolnikoff.

118. THE THEORY OF PROBABILITIES AND METHODS OF LEAST SQUARES. I; 3 cr. Mr. Evans.

135. INTRODUCTION TO STATISTICAL METHODS IN THE NATURAL SCIENCES. I; 3 cr. Prerequisite: A freshman course in mathematics. An introductory course designed to furnish the students with an elementary knowledge of some of the statistical measures and technique used in the natural sciences. Two lectures; 3 hours laboratory. Lab. fee $2.25. Mr. Eisenhart.

137. THE MATHEMATICS OF STATISTICS. II; 3 cr. A course in curve-fitting, correlation, dispersion, frequency distributions, graphical calculation, and portions of the theory of probability. Prerequisites: Calculus and consent of instructor. Mr. Evans.

173. A CRITIQUE OF ELEMENTARY AND COLLEGIATE MATHEMATICS. II; 3 cr. A discussion of the historical development with an analysis of the content and interrelations of selected topics in elementary and intermediate mathematics. Open to majors in the Department of Mathematics in their senior year, to graduates, and to others upon the consent of the instructor. Mr. Kleene.

GRADUATE COURSES

The graduate courses in mathematics are varied from year to year according to the needs of the students, other subjects being introduced in addition to those here listed. When there is no indication in the description of a course that it is given every year or every other year, this lack of information should be interpreted to mean that the course is given at irregular times.

200. READING AND RESEARCH. Staff.

217. VECTOR AND TENSOR ANALYSIS. II; 3 cr. Mathematics 117 and 217 form a year course. The second semester's work deals with the physical and geometrical applications of tensors to Newtonian dynamics, electrodynamics, and theory of relativity. Not offered 1938-39. Mr. Sokolnikoff.

219. DIFFERENTIAL GEOMETRY. I; 3 cr. A study of curves and surfaces in three dimensions by classical methods, followed by an introduction to corresponding problems in n-dimensions involving tensor methods.

220. THEORY OF ANALYTIC FUNCTIONS. Yr; 3 cr. This course, like Course 221, is fundamental in analysis. Its content is restricted to functions of the complex variable. It has some special interest in the application of mathematics to physics. Offered 1939-40 and in alternate years. Mr. Langer.

221. THEORY OF FUNCTIONS OF A REAL VARIABLE. Yr; 3 cr. Mr. Langer.

230. TOPICS IN THE FOUNDATIONS OF MATHEMATICS. I; 3 cr. An introduction to problems in the critical analysis of the foundations of mathematics, particularly of recursive number theory. Emphasis will be placed on the structure of mathematical reasoning. Mr. Kleene.

231. FOUNDATIONS AND GENERAL METHODS OF PROBABILITY. II; 3 cr. A course treating advanced topics in the mathematical theory of probability such as the postulational basis for finite, denumerable, and continuous probabilities, applications of point set theory and Stieltjes integrals, operational methods, and the application of vectors and matrices to sampling theory. Mr. Evans.

238. THE MATHEMATICS OF ECONOMIC STATISTICS. I; 3 cr. Not offered 1938-39. Mr. Ingraham.

243. MODERN THEORY OF DIFFERENTIAL EQUATIONS. I; 3 cr. A critical consideration of the ordinary differential equations in the domain of real variables. Existence theorems. Theorems of oscillation and comparison. Boundary conditions, the Green's function, and the development of functions in terms of solutions of differential equations. Mr. Langer.

244. HIGHER GEOMETRY. I; 3 cr. A study of projective geometry in three and higher dimensions. The postulational approach to the subject will also be considered.

245. ALGEBRAIC GEOMETRY. II; 3 cr. Algebraic curves and their singularities; the geometry of the curve and the associated Riemann surface. May be offered 1938-39.

250. SEMINARY IN THEORY OF ELASTICITY. Yr; 2 cr. Mr. March.

261. ABSTRACT ALGEBRA. Yr; 3 cr. Theory of numbers, abstract groups, algebraic and Galois fields, and matrices, with an introduction to modern abstract algebra. Mr. MacDuffee.

263. Higher Algebra. I; 3 cr. Matrices, linear dependence and independence, quadratic and Hermitian forms, elementary divisors, and an introduction to matric equations. Not offered 1938-39. Mr. Ingraham.

265. Harmonic Analysis. Yr; 3 cr. Boundary value problems connected with the partial differential equations of ordinary occurrence in mathematical physics. Fourier's series, series of Bessel's functions, and spherical harmonics. Mr. March.

267. Calculus of Variations. I; 3 cr. An introductory course devoted to the classical theory and problems. Prerequisite: Differential and integral calculus. Not offered 1938-39. Mr. Langer.

268. Partial Differential Equations. II; 3 cr. This course treats the theory of the partial differential equation of the first order and the various types of linear partial differential equations of second order. It presupposes an ordinary introductory course in differential equations, and some elementary knowledge of the theory of power series. Mr. Langer.

269. Theory of Integral Equations. II; 3 cr. An introductory course. The classical approach to the equations of Volterra and Fredholm types. Not offered 1938-39. Mr. Langer.

271. Linear Algebras. II; 3 cr. A course in the theory of linear associative algebras of finite order and their associated number theories. Not offered 1938-39. Mr. Ingraham.

272. Seminary in Algebra. Yr; 1 or 2 cr. Mr. Ingraham.

274. Theory of Numbers and Diophantine Equations. II; 3 cr. Elementary properties of the rational integers and an introduction to the theory of quadratic forms and certain Diophantine problems. Mr. Ingraham.

278. Ordinary Differential Equations of a Complex Variable. II; 3 cr. A study of the properties and functional character of the solutions of ordinary differential equations in which the variables are complex. Some familiarity with the theory of functions of a complex variable is a requisite. Not offered 1938-39. Mr. Langer.

284. Seminar in the Foundations of Mathematics. II; 2 cr. Mr. Kleene.

Attention is also called to the following courses which are essentially mathematical:

Physics 211. Advanced Dynamics. Yr; 3 cr. Centralized coordinates, Lagrange's and Hamilton's equations, free and forced vibrations, elements of hydrodynamics and of the theory of elasticity. Offered 1939-40 and in alternate years. Mr. March.

Physics 215. Theory of Electricity. Yr; 3 cr. A course devoted to the mathematical treatment of the Maxwell-Lorentz theory of electrodynamics. Offered 1938-39 and in alternate years. Mr. Sokolnikoff.

Courses in Theory of Elasticity, Theory of Potential, Advanced Algebraic Theory of Equations, Advanced Analytic Theory of Equations, and Infinite Series of Functions are given at intervals when demand warrants.

TEACHERS' COURSE

The Teaching of Mathematics. See School of Education.

METEOROLOGY

ERIC REXFORD MILLER, M.S., *Lecturer in Meteorology*

1. WEATHER AND CLIMATE. I; 3 cr. Prerequisite: A semester of college physics or college chemistry. Not open to freshmen in the College of Letters and Science. Lecture, quiz, 10 MWF. Mr. Miller.

2. CLIMATE AND MAN. II; 3 cr. Prerequisite: A semester of college physics or college chemistry. Not open to freshmen in the College of Letters and Science. Lecture, quiz, 10 MWF. Mr. Miller.

103. METEOROLOGY. Yr; 3 cr. A study of the thermodynamics and mechanics of the atmosphere. Air mass analysis. Prerequisites: Mathematics 112; Physics 115. Lecture 11 MWF. Offered 1938-39 and in alternate years. Mr. Miller.

106. CLIMATOLOGY. Yr; 3 cr. Reduction of climatological observations. Mapping. Correlation of climatic data. Periodogram analysis. Prerequisite: Econ. 30 or Math. 137. Lecture 2:30 MWF. Offered 1939-40 and in alternate years.

110. AERONAUTICAL METEOROLOGY. II; 1 cr. Open to students in Mechanical Engineering who elect the Aeronautics option. Lecture, quiz, 9 F. Mr. Miller.

MUSIC

CARL ERNEST BRICKEN, B.A., *Professor of Music, Director*
CECIL BURLEIGH, *Professor of Music*
LELAND AVERY COON, M.A., *Professor of Music*
EDGAR BERNARD GORDON, *Professor of Music*
LOUISE LOCKWOOD CARPENTER, B.M., *Associate Professor of Music*
EDWARD EARLE SWINNEY, B.A., B.M., *Associate Professor of Music*
ORIEN EMEAL DALLEY, M.M., *Assistant Professor of Music*
RAYMOND FRANCIS DVORAK, B.Sc., B.M., *Assistant Professor of Music*
IRENE BELLE EASTMAN, B.M., *Assistant Professor of Music*
LEON LEONARD ILTIS, B.M., *Assistant Professor of Music*
FLORENCE BERGENDAHL, *Instructor in Music*
PAUL GEORGE JONES, B.M., M.A., *Instructor in Music*
LEOPOLD JOSEPH LIEGL, B.S., *Instructor in Music*
HELENE STRATMAN-THOMAS, B.M., M.A., *Instructor in Music*

See School of Music, page 105, for outline of four-year curriculum in music.
For regulations covering the election of music courses by non-School of Music students, see page 101, paragraph 3.

THEORY COURSES

Courses numbered from 1 through 100 are open for credit to undergraduates only; from 101 to 199 to both undergraduates and graduates; over 200 to graduates only, or very exceptionally to advanced undergraduates.

1. HARMONY. Yr; 3 cr. Provides the student with a working knowledge of the chord material up to the dominant seventh. Much attention is given during the first semester to intervals, triads, and elementary chord

progressions. From the first, the material of the course is used as a basis for keyboard harmony. All students are required to harmonize melodies and to transpose at the keyboard. Miss Eastman, Mr. Jones, and Miss Thomas.

5. Form and Analysis. II; 2 cr. Prerequisite: Music 11. A study of the various musical forms and the application of the structural and harmonic principles involved to the survey of representative works of the masters. Miss Thomas.

11. Second Year Harmony. Yr; 3 cr. Prerequisite: Music 1. Harmonization of melodies using secondary sevenths, the dominant ninth with its derivatives—the leading and diminishing sevenths; suspensions, auxiliary notes, and extraneous modulation. Writing original exercises in the smaller forms. Miss Eastman.

21. Elementary Counterpoint. Yr; 2 cr. Prerequisite: Music 1b. The combination of melodies based on the principles of the Palestrina school of choral composition. A study of the five rhythmic species in two and three part writing; an introduction to combined counterpoint. Miss Thomas.

31. History of Music. Yr; 2 cr. An historical survey of the growth of music to the present day; the lectures are amply illustrated with examples of all music under survey. A student of this course should acquire a certain critical sense as to musical values, a keener sense of discrimination and taste, and the ability to place a given piece of music in its historical period. Lab. fee $.50. Miss Thomas.

36. Pedagogy. (Piano, violin, voice, organ.) I; 2 cr. Prerequisites: Music 5, 31. An intensive analysis of technical and musical materials with reference to their use in teaching. Evaluation of various means of presentation. Discussion of pedagogical theories of the past and present. Open only to juniors and seniors in the School of Music. Staff.

37. Applied Pedagogy. (Piano, voilin voice, organ.) II; 2 cr. Prerequisite: Music 36. Actual private and class teaching under supervision. Lesson plans and weekly discussion of problems. Staff.

39. Theory and Practice of Supervision. Yr; 3 cr. Prerequisite: Music 51 and senior standing. Problems of organization and administration of the school music program; preparation of courses of study including integration and correlation of music with the other subjects of the curriculum; supervision of practice teaching. Mr. Gordon.

51. Theory and Practice of Grade School Music. Yr; 2 cr. Material and method employed in teaching grade school children, emphasizing the cultural values of music; consideration of the problems of teaching sight singing, theory, rhythmics, and appreciation. Course involves lectures, laboratory practice and actual observation of classroom teaching. Mr. Gordon.

53. The Teaching of Secondary School Music. I; 2 cr. The development of curricular courses in vocal, instrumental, and theoretical music on a college entrance level; the provision for self-expressive opportunity of an intra-curricular character; practical problems involved in development of bands, orchestras, and choral groups; survey of material; elementary conducting. Mr. Gordon.

65. Appreciation of Music. Yr; 1 cr. Prerequisite: Sophomore standing. A general survey of the development of music with practical illustrations. Open to the general student body. Mr. Jones.

66. Conducting. II; 2 cr. Prerequisite: Junior standing or special permission. Technique of the baton, personality factors in leadership, rehearsal procedure problems of interpretation, selection of material, program building, laboratory experience in handling vocal and instrumental groups. Mr. Gordon.

75. Advanced Solfeggio and Choral Technique. Yr; 1 cr. Emphasis upon ear training, development of absolute pitch; tonal, chordal and rhythmic dictation; sight reading of choral literature, chiefly of the polyphonic period. Completion of this course is based on attainment and not on credits. Mr. Gordon.

76. Orchestra. Yr; 0-1 cr. Prerequisite: Ability to play some instrument. Membership decided by tryouts. Open to entire student body. Mr. Dalley.

77. Choral Music. Yr; 0-1 cr. The University Singers, the Men's Chorus and the Women's Chorus devote themselves to the study of the masterpieces of choral literature in their respective fields. Miss Bergendahl, Mr. Jones, Mr. Swinney.

78. Music and its Contribution to the Life of the Community. II; 2 cr. Music in its relation to the changing social order; music and leisure, informal singing, conducting simpler forms of instrumental performance, community music festivals and pageants. Mr. Gordon.

80. Bands. Yr; 0-1 cr. Prerequisites: Knowledge of some band instrument and consent of instructor. Credit is given beginning with the sophomore year. Mr. Dvorak.

89. Instrumental Class Instruction. I; 2 cr. Prerequisite: Music 1b. A practical class for acquiring an elementary playing and teaching knowledge of orchestra and band instruments. Fee $5.00. Mr. Dalley, Mr. Dvorak, Mr. Liegl.

90. Instrumentation. II; 2 cr. Prerequisite: Music 89. A course in playing and writing for string, woodwind, and brass ensembles. Lab. fee $2.50. Mr. Dvorak.

91. Instrumental Methods. I; 2 cr. Prerequisite: Music 90. An advanced practical study of stringed and wind instruments. Mr. Dalley and Mr. Dvorak.

92. Instrumental Music Administration. Yr; 3 cr. Prerequisites: Music 89 and 90 or equivalent. Problems of organizing instrumental classes, bands and orchestras on a curricular and extra-curricular basis. Evaluation of teaching methods. Selection and care of instruments and music. Practical experience in conducting and interpretation of music materials. Lab. fee $2.50. Mr. Dalley.

95. Elementary Survey. Yr; 2 cr. Senior standing or consent of instructor. A study of stylistic, formal and harmonic development as illustrated by representative compositions from Bach to the modern school. Lab. fee $1.00. Staff.

100. Thesis. Yr; 2 cr. The inclusion of thesis among the required subjects is optional with the department concerned. Staff.

102. Advanced Harmony and Elementary Composition. I, II; 2 cr. Prerequisites: Music 11, 21, and 5. The study and application of chromatic harmony; an approach to original composition. Miss Thomas.

121. Advanced Counterpoint. I, II; 2 cr. Prerequisite: Music 21. Continued study of combined counterpoint of the five species; counterpoint on a chorale and on a florid cantus firmus. Mr. O'Neill.

122. Double Counterpoint, Canon and Fugue. I, II; 2 cr. Prerequisite: Music 121. Analysis and composition. Examples taken from Bach and others of the classical period, as well as from modern masters. Two fugues in three or four voices are required each semester for the completion of this course. Mr. O'Neill.

131. Advanced History of Music. I, II; 3 cr. Prerequisites: Music 31 and consent of instructor. The work in the subsections listed below consists of a minute and critical study of the music and texts of the period and involves a thorough study and analysis of a great amount of music, scores, and records. A reasonably good reading knowledge in at least French and German is recommended. Each of the following periods is a semester course: The Clavecin period; the Modern French school; Wagner. Fee $1.00. Mr. Coon.

152. Orchestration. Yr; 3 cr. Prerequisite: Music 90. A study in the history of orchestration. Representative orchestral works will be studied by means of scores and phonograph records. Attendance at rehearsals of the university orchestra. Texts by Forsyth, Rimsky-Korsakow, Widor, and others are used as reference. Scoring for orchestra. Mr. Dalley.

162. Composition. Yr; 2 cr. Prerequisite: Music 102. Original composition and analysis, based upon the diatonic system of harmony. Songs, quartets, piano pieces, etc. Mr. Burleigh.

165. Survey of Music. Yr; 3 cr. Prerequisites: Music 95 and graduate standing. A critical study of the development of the orchestra and a thorough knowledge of the symphonic literature of the classical, romantic, and modern composers. Ability to read from the orchestral score. Fee $1.00. Mrs. Carpenter.

180. Advanced Independent Study. I, II; *cr. See Section 20, page 66. Staff.

181. Artist Course in Applied Music. Yr; 1-2 cr. Prerequisite: Graduate standing in applied music. Staff.

200. Master's Thesis. Yr; 2 cr. Prerequisite: Graduate standing. Subjects appropriate for graduate theses are chosen after consultation with the Graduate Committee. Staff.

201. Research. *cr. Prerequisite: Graduate standing. Staff.

211. Modern Orchestration. Yr; 2 cr. Prerequisite: Graduate standing. Continuation of Music 152. A further study of modern methods in orchestration. Original work in composition for orchestra will be required. Mr. O'Neill.

222. Fugue. I, II; 2 cr. Prerequisite: Music 122. A study of the higher branches of polyphonic writing. Four original fugues each semester are required for the completion of this course. Mr. O'Neill.

231. SEMINAR. Yr; 2 cr. Prerequisite: Graduate standing. Seminar reports and class discussion. Essentially a course in musicology. Fields previously studied include the Wagnerian Ring, Early Orchestral Music, Musical Forces up to the Seventeenth Century, Aesthetic Phases of Musical Form, Contemporary American Music, Early Music Theorists. Mr. Coon.

262. MODERN HARMONY AND ADVANCED COMPOSITION. Yr; 2 cr. Prerequisites: Music 121 and 162. The study of the modern trend in harmony, rhythm, melody, and structure. Original work in symphonic form required for the completion of the course. Mr. Burleigh.

APPLIED MUSIC

Students registering for any of the courses listed below should consult the Music Assignment Committee in Music Hall before filling in any definite hours on their study lists.

Instruction is given either in private lessons or in classes.

For fees charged see page 104.

41. PIANO ENSEMBLE. I, II; 1 cr. Prerequisite: Consent of instructor. Required of applied music majors for three semesters of the junior and senior years. Sight reading, accompaniment, sonata playing. Staff.

42. VOCAL ENSEMBLE. I, II; 1 cr. Prerequisite: Consent of instructor. Required of voice majors for three semesters of the junior and senior years. Staff.

43. CHAMBER MUSIC. I, II; 1 cr. Prerequisite: Consent of instructor. Staff.

81. PIANOFORTE. 0-2 cr. The acquisition of an adequate repertoire for performance or teaching. Special fee. Mrs. Carpenter, Mr. Coon, Mr. Iltis, Mr. Jones.

82. VOICE. 0-2 cr. The technique of tone production; correct principles of breathing; the vocal organs and their action; study of diction, English, French, German, and Italian; study of repertoire to cover all types of song literature; stage deportment; recital and concert appearance. Special fee. Miss Bergendahl, Mr. Swinney.

83. STRINGED AND OTHER ORCHESTRAL INSTRUMENTS. 0-2 cr. The study of the solo literature, with special emphasis upon performance. Special fee. Mr. Burleigh, Mr. Dalley, Mr. Dvorak, Mr. Liegl.

84. ORGAN. 0-2 cr. Prerequisites: A satisfactory piano technique, and some skill in polyphonic playing. Special fee. Miss Eastman, Mr. Jones.

NORSE

(See Scandinavian Languages, page 214)

PHARMACY

ARTHUR HOYT UHL, Ph.D., *Associate Professor of Pharmaceutical Chemistry, Chairman*
WILLIAM OSCAR RICHTMANN, Ph.D., *Professor of Pharmacognosy*
NELLIE ANTOINETTE WAKEMAN, Ph.D., *Assistant Professor of Pharmacy*
KARL JOHN GOLDNER, Ph.D., *Instructor in Pharmacy*
LLOYD M. PARKS, Ph.D., *Instructor in Pharmaceutical Chemistry*

The professional courses in pharmacy are not open to election for credit by non-pharmacy students without the written permission of the dean of the college. The curriculum of the Course in Pharmacy is outlined on page 82.

PHARMACY

1. ORIENTATION IN PHARMACY. Yr; 3 cr. Required of freshmen in the Course in Pharmacy. Lab. fee $7.50 per semester. 8 TT; 3 hours lab. Mr. Uhl.

20. ELEMENTARY PRESCRIPTION PRACTICE. Yr; 2 cr. The compounding and the study of simple prescriptions. Lab. fee $7.50 per semester. 9 TT; 3 hours lab. Mr. Goldner.

50. HISTORY OF PHARMACY. Yr; 1 cr. The development of pharmacy in the principal countries of Europe, followed by a more detailed study of the development of pharmacy in the United States. Offered 1938-39 and in alternate years. 1:30 F. Mr. Richtmann.

51. DRUG-STORE PRACTICE. Yr; 1 cr. Lectures and topics on aspects of drug-store practice ranging from the planning and equipment of a store to salesmanship and the laws governing the practice of pharmacy. Offered 1939-40 and in alternate years. 1:30 F. Mr. Uhl and special lecturers.

100. SENIOR THESIS. Yr; 2 cr. Lab. fee $5.00 per semester. Staff.

121. ADVANCED PRESCRIPTION PRACTICE. I, II; 4 cr. A study of classes of modes of administration with special reference to incompatibilities. Prerequisites: Pharmacy 20, Ph. Chem. 126 and 127. Lab. fee $7.50. 1:30 Tu; 3 hours lab. Mr. Goldner.

124. DISPENSARY PRACTICE. I, II; 2 cr. Dispensary problems; hospital practice. Prerequisite: Consent of instructor. Lab. fee $5.00. 2:30-4:30 M. Mr. Uhl.

128. PHARMACEUTICAL TECHNOLOGY. I, II; 4 cr. A course in the preparation of pharmaceutical products. Prerequisites: Ph. Chem. 24 and 126 or concurrent registration. Lab. fee $7.50. 1:30 Th; 3 hours lab. Mr. Uhl.

131. ADVANCED PHARMACEUTICAL TECHNOLOGY. Yr; 1-5 cr. Problems in the preparation of pharmaceutical preparations. Lab. fee $5.00 per lab. credit. Mr. Uhl.

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

200. RESEARCH. Yr; 1-5 cr. Lab. fee $5.00 per lab. credit. Staff.

232. GRADUATE PHARMACEUTICAL TECHNOLOGY. Yr; 1 cr. Mr. Uhl.

250. CONFERENCE OF RESEARCH WORKERS. Yr; 1 cr. 10 F. Mr. Uhl and staff.

PHARMACEUTICAL AND PLANT CHEMISTRY

24. Organic Chemistry for Pharmacy Students. Yr; 2 cr. An elementary course drawing upon the materials of pharmacy and medicine for illustration and emphasizing reactions of pharmaceutical importance. Prerequisite: Chemistry 1. Lab. fee $10.00 per semester. Mr. Parks.

100. Senior Thesis. Yr; 2 cr. Lab. fee $5.00 per semester. Staff.

126. Inorganic Pharmaceutical Chemistry. I; 3 cr. A review of the principles of inorganic chemistry with special attention to methods for preparing and testing medicinal chemicals. Prerequisite: General chemistry. Lab. fee $10.00. 9 MW; 3 hours lab. Mr. Parks.

127. Organic Pharmaceutical Chemistry. II; 3 cr. A review of the principles of organic chemistry with special reference to organic medicinal chemicals. Prerequisite: Organic chemistry. Lab. fee $10.00. 9 MW; 3 hours lab. Mr. Parks.

129. Synthetic Organic Remedies. Yr; 1-5 cr. The preparation and properties of synthetic organic remedies. Prerequisite: Pharm. Chem. 24 or Chem. 120. Lab. fee $5.00 per lab. credit. Offered 1939-40 and in alternate years. Miss Wakeman.

140. Plant Chemistry. Yr; 3 cr. A study of plant products and plant chemical processes. Prerequisites: Pharm. Chem. 24 or Chem. 120. Lab. fee $15.00 per semester. 11 TT; 6 hours lab. Miss Wakeman.

145. Pharmaceutical Assaying. Yr; 2 cr. The principles of quantitative analysis both gravimetric and volumetric as applied to the assay of pharmaceutical materials. Prerequisite: Pharmaceutical Chemistry 126 or concurrent registration. Lab. fee $10.00 per semester. Mr. Goldner.

200. Graduate Research. Yr; 2-6 cr. Volatile oils and other subjects of organic chemistry with special reference to plant chemistry. Lab. fee $5.00 per lab. credit, maximum of $25.00. Staff.

241. Advanced Plant Chemistry. Yr; 2 cr. 10 TT. Staff.

PHARMACOGNOSY

10. Crude Vegetable and Animal Drugs. Yr; 1 cr. An introductory course in pharmacognosy based upon a morphological arrangement. 10-12 Tu or Th. Mr. Richtmann.

21. Doses of Vegetable and Animal Drugs. I, II; 1 cr. A general consideration of the various items associated with doses of medicines. Prerequisites: Pharmacognosy 10, Botany 1, Chemistry 1. Mr. Richtmann.

22. Habitats of Crude Vegetable and Animal Drugs. I, II; 1 cr. A study of various factors influencing the geographic sources of natural remedial agents. Mr. Richtmann.

100. Senior Thesis. Yr; 2 cr. Lab. fee $5.00 per semester. Mr. Richtmann.

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

120. NATURAL HISTORY OF VEGETABLE AND ANIMAL DRUGS. Yr; 3 cr. A monographic study of a considerable number of vegetable and animal drugs, based on their natural relationships. Prerequisites: Pharmacognosy 10, Botany 1, Chemistry 1. Lab. fee $5.00. 8-10 MWF. Mr. Richtmann.

130. CULTIVATION OF MEDICINAL PLANTS. Yr; 1-5 cr. Mr. Richtmann.

200. RESEARCH IN MEDICINAL PLANTS. Yr; 1-5 cr. Lab. fee $5.00 per lab. credit. Mr. Richtmann.

PHILOSOPHY

MAX CARL OTTO, Ph.D., *Professor of Philosophy, Chairman*
CARL MOELLER BÖGHOLT, Ph.D., *Associate Professor of Philosophy*
A. C. GARNETT, Litt.D., *Associate Professor of Philosophy*
ALBERT GUSTAV RAMSPERGER, Ph.D., *Assistant Professor of Philosophy*
ELISEO VIVAS, Ph.D., *Assistant Professor of Philosophy*
FREDERICK BURKHARDT, B.Litt., (Oxon), *Instructor in Philosophy*
STEPHEN LEE ELY, Ph.D., *Instructor in Philosophy*
HORACE SNYDER FRIES, Ph.D., *Lecturer in Philosophy*

The student is at liberty to begin his work in philosophy with any of the courses numbered under one hundred, but beginners who desire to take three hours of work throughout the year in the department, whether they wish to continue with the subject or not, will ordinarily find it most profitable to select course 11, 21, 31, or 41 in the first semester and either 11, 21, or 132 in the second semester. None of the courses in this department is open to freshmen.

MAJOR. The minimum requirement is 24 credits including courses 31 and 132. Of these at least 15 must be taken from the one-hundred group. A thesis may be included in these 24 credits at the option of the department.

11. ELEMENTARY LOGIC. I, II; 3 cr. Nine sections. Prerequisite: Sophomore standing. Mr. Bögholt, Mr. Burkhardt, Mr. Ely, Mr. Fries, Mr. Garnett, Mr. Otto, Mr. Ramsperger, Mr. Vivas.

21. INTRODUCTION TO PHILOSOPHY. I, II; 3 cr. Prerequisite: Sophomore standing. Lecture 10 WF and 11 TT; quiz. I, Mr. Bögholt, Mr. Burkhardt; II, Mr. Ely, Mr. Ramsperger.

25. PHILOSOPHY AND THE HUMAN ENTERPRISE. II; 3 cr. Prerequisite: Junior standing. Lecture 10 TT; quiz. Mr. Otto, Mr. Bögholt, Mr. Burkhardt, Mr. Ely, Mr. Fries.

28. PHILOSOPHICAL IDEAS IN CONTEMPORARY LITERATURE. II; 2 or 3 cr. Prerequisite: Sophomore standing. 9 MWF. Mr. Vivas.

31. HISTORY OF ANCIENT PHILOSOPHY. I; 3 cr. Prerequisite: Sophomore standing. 11 MWF. Mr. Vivas.

41. INTRODUCTORY ETHICS. I; 3 cr. Prerequisite: Sophomore standing. 9 MWF. Mr. Ely.

53. PHILOSOPHY OF THE ARTS. I; 3 cr. Some of the fundamental problems of art, and the relation of art to other modes of human activity. Prerequisite: Sophomore standing. 10 MWF. Mr. Vivas.

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

106. The Development of German Idealism. II; 3 cr. A study of Post-Kantian thought in Germany from Fichte through Hegel. Prerequisite: Philosophy 21, 25, 31, 132 or consent of instructor. Mr. Burkhardt.

111. Second Semester Logic. II; 3 cr. Prerequisite: Phil. 11. 9 MWF. Mr. Bögholt.

120. Philosophy of Science. I; 3 cr. The philosophical assumptions underlying the development of modern science and the conception of values involved in a scientific civilization. Prerequisite: Philosophy 11, 21, 25, 31, or 132. 10 MWF. Mr. Ramsperger.

132. History of Modern Philosophy. II; 3 cr. Prerequisite: Philosophy 31, or consent of instructor. 11 MWF. Mr. Vivas.

134. Contemporary Philosophy. I, II; 3 cr. Prerequisite: Philosophy 21, 25, 31, or 132. 11 MWF. Mr. Garnett.

135. Descartes, Spinoza, and Leibniz. II; 3 cr. Prerequisite: Philosophy 21, 25, 31, or 132. 11 TT. Offered 1938-39 and in alternate years. Mr. Ramsperger.

136. Locke, Berkeley, and Hume. I; 3 cr. Prerequisite: Philosophy 21, 25, 31, or 132. 11 TT and third hour. Mr. Ramsperger.

137. The Philosophy of Kant. II; 3 cr. Prerequisite: Philosophy 21, 25, 31, or 132. Not offered 1938-39. Mr. Ramsperger.

139. American Philosophers. I; 3 cr. William James and John Dewey. Prerequisite: 3 cr. in philosophy. 9 TT; quiz. Mr. Otto.

141. History of Ethics. I; 3 cr. Prerequisite: Philosophy 21, 25, 31, 41, or 132. 9 MWF. Mr. Garnett.

144. Schopenhauer and Nietzsche. I; 3 cr. Not offered 1938-39. Prerequisite: Philosophy 21, 25, 31, or 132. 1:30 MWF. Mr. Vivas.

145. Plato's Republic. II; 2 or 3 cr. Prerequisite: Philosophy 21, 25, 31, or 41. Not offered 1938-39.

147. Philosophy of Religion. II; 3 cr. Prerequisite: Junior standing or 3 credits in philosophy. 10 MWF. Mr. Garnett.

150. A Philosophy of Democracy. I; 3 cr. Prerequisite: 3 credits in philosophy. 1:30 MWF. Mr. Bögholt.

153. Current Problems in Aesthetics. II; 2 or 3 cr. Prerequisite: Philosophy 53 or consent of instructor. Mr. Vivas.

158. Types of Humanism. I; 3 cr. Not offered 1938-39. Mr. Otto.

162. Idealism versus Pragmatism. I; 3 cr. Prerequisite: Philosophy 11, 21, 25, 31, or 132. 11 TTq. Not offered 1938-39.

170. French Philosophy: Descartes to Bergson. I; 3 cr. The survey will includes Descartes, Voltaire, Rousseau, Comte, Taine, and Bergson. Prerequisite: Philosophy 21, 25, 31, or consent of instructor. 1:30 TT. Mr. Ely.

200. Thesis. Yr; 2 cr. Staff.

213. Logical Seminary. Yr; 2 cr. Mr. Otto.

240. Metaphyslcal Seminary. I; 2 cr. Mr. Garnett.

247. Ethical Seminary. II; 2 cr. Mr. Garnett.

PHYSICS

Leonard Rose Ingersoll, Ph.D., *Professor of Physics, Chairman*
Gregory Breit, Ph.D., *Professor of Physics*
John Ransom Roebuck, Ph.D., *Professor of Physics*
Hugo Bernard Wahlin, Ph.D., *Professor of Physics*
William Frederick Steve, M.A., *Associate Professor of Physics*
Raymond George Herb, Ph.D., *Assistant Professor of Physics*
Julian Ellis Mack, Ph.D., *Assistant Professor of Physics*
Ragnar Rollefson, Ph.D., *Assistant Professor of Physics*
John Gibson Winans, Ph.D., *Assistant Professor of Physics*
William Rudolph Kanne, Ph.D., *Instructor in Physics*

In order to adapt the instruction in physics to students of different purpose and degree of preparation the following introductory courses in general physics are offered: 1, 17, 31, 51-52, 53-54, 61, and 65. Any one of these courses may be taken as an elective, but 61 is not given Letters and Science credit. The science requirements for the B.A. and Ph.B. degrees are satisfied by 1, 31, or 51-52, and for the B.A. in part by 17. The general Letters and Science course is given in two divisions designated as courses 1 and 31. Course 1 is arranged to meet the needs of those with different degrees of preparation. Fundamentals are treated with a minimum of mathematical emphasis. Course 31 is intended for those who need or desire a more fundamental training, and presupposes either high-school physics or freshman mathematics, or concurrent registration in the latter. It is assumed that students taking any of the courses (except 17) have had elementary high-school algebra or its equivalent. After completion of one of the introductory courses the student who is interested in the subject will normally take next 102, 103, and 104.

Major in Physics. This field of concentration includes all courses taught by the Department of Physics. A minimum of 26 credits is required, which shall include the following courses: 1 or 31 (or 51-52), 102, 103, 104a, and 100. The remaining credits are to be selected from 7, 10, 104b, 106, 112, 115, 116, 117, 118, 119, 124, 126, 134. A major in physics normally includes a thesis which is usually an account of a piece of experimental work done largely on the student's own initiative. For the few who are handicapped in experimental work an essay on an approved physical subject involving a search of some literature may be offered as a substitute. For those sufficiently prepared in mathematics, a theoretical thesis may be offered.

For teaching major and minor see School of Education.

Major in Physics-Mathematics. The courses listed below from (a) to (d) comprise the field of concentration in physics-mathematics. The major consists of the following courses, with a maximum of 40 credits in groups (a) through (d) and a grand total of not more than 50 credits, including group (e).

(a) Mathematics—algebra and trigonometry (which may be completed in high school); analytic geometry and calculus.

(b) Physics 1, 31, or 51-52—10 credits.

(c) A minimum of 6 credits selected from Mathematics 102a, 102b, or 112, 104, 116, 117, 118.

(d) A minimum of 6 credits selected from Physics 106, 112, 115, 116, 117, 118, 119, 124, 126, 134.

(e) A minimum of 6 credits selected from the following group of courses, which are within the division although not included within this field of concentration: Physics 102, 103, 104; Mathematics 101, 103; Metallurgy 135; Mechanics 101, 107; Electrical Engineering 116, 120, 155; Chemistry 130; Hydraulics 104, 115; Astronomy 6, 101, 102, 116.

1a. GENERAL PHYSICS. I, II; 5 cr. Mechanics, heat, magnetism, static electricity. (See also Physics 31.) Lab. fee $7.00. Lecture 11 or 1:30 MW; 4 hrs. lab; 2 hrs. quiz. (Repeated second semester; lecture 2:30 TT.) Mr. Steve, Mr. Mack and staff.

1b. GENERAL PHYSICS. II, I; 5 cr. Current electricity, sound, and light. Prerequisite: Physics 1a. Lab. fee $7.00. Lecture 11 or 1:30 MW; 4 hrs. lab; 2 hrs. quiz. (Repeated first semester; lecture 2:30 TT.) Mr. Steve, Mr. Mack and staff.

Note: For second courses see 102, 103, 104.

7. PHOTOGRAPHY. I, II; 2 cr. Elementary theory and practice. Image formation, perspective, exposure-density curve, latent image, elementary chemistry of development, contact and projection printing, filters, color. Prerequisite: Sophomore standing. Lab. fee and deposit $7.00. Lecture 3:30 F; 3 hrs. lab-quiz. Mr. Mack.

10. LABORATORY ARTS. I; 1 cr. Glass blowing and shop work. Required for experimental thesis Physics 100. Prerequisite: Sophomore standing and consent of instructor. Lab. fee $3.00. Mr. Roebuck.

17. SURVEY OF PHYSICS: NATURE OF THE PHYSICAL WORLD. II; 4 cr. A brief course designed to fulfill in part the non-professional science option for the B.A. degree. May be credited by students in the Ph.B. course as a free elective only. Open to all students, excepting those who have taken a more extended introductory course in physics. Lecture 1:30 TT and two hours of quiz in which the phenomena of physics are demonstrated and discussed from both the older and newer viewpoints in an essentially non-mathematical manner; one two-hour laboratory period per week. Mr. Winans and staff.

31. GENERAL PHYSICS. Yr; 5 cr. Prerequisite: High-school physics or freshman mathematics, or concurrent registration in the latter. Recommended for students who expect to major in physics or chemistry. Lab. fee $7.00 a semester. Lecture 1:30 F; 4 hrs. lab; 3 hrs. quiz. Mr. Roebuck and staff.

51. GENERAL PHYSICS. I; 5 cr. Mechanics, wave motion, and heat. Required of sophomores in civil, chemical, mechanical, and mining engineering. Lab. fee $7.00. Lecture 3:30 M or W; 4 hrs. lab; 2 hrs. quiz; 2 hrs. comp. Mr. Ingersoll and staff.

52. GENERAL PHYSICS. II; 5 cr. Magnetism, electricity, sound, and light. Continuation of Physics 51. Lab. fee $7.00. Lecture 3:30 M or W; 4 hrs. lab; 2 hrs. quiz; 2 hrs. comp. Mr. Ingersoll and staff.

53. MECHANICS. I; 3 cr. Required of sophomores in electrical engineering. Lab. fee $3.60. Lecture 1:30 Th; 2 hrs. lab.; 1 hr. quiz; 2 hrs. comp. Mr. Wahlin and staff.

54. HEAT, WAVE MOTION, SOUND, AND LIGHT. II; 3 cr. Continuation of Physics 53. Lab. fee $3.60. Lecture 3:30 Th.; 2 hrs. lab.; 1 hr. quiz; 2 hrs. comp. Mr. Wahlin and staff.

55. ADVANCED ELECTRICAL MEASUREMENTS. I; 3 cr. Prerequisites: Physics 1b, or 31b or 52, or 54 plus EE 1. Required of juniors in electrical engineering. Theory and use of electrical apparatus. Certain phases of modern physics are discussed and dealt with in the laboratory. Lab. fee $6.00. Lecture-conference 1:30 F; 4 hrs. lab. Mr. Wahlin and staff.

56. ADVANCED ELECTRICAL MEASUREMENTS AND LIGHT. II; 3 cr. Prerequisite: Physics 55 or 104a. Required of seniors in electrical engineering. Alternating current measurements, bridges. Elementary theory and experiments in interference, diffraction, polarization, and optical instruments. Lab. fee $6.50. Lecture-conference 1:30 F; 4 hrs. lab. Mr. Wahlin, Mr. Rollefson and staff.

61. GENERAL PHYSICS. II; 5 cr. For agricultural and home economics students and physical education men students. Letters and Science students may take this course for 4 credits only as Physics 17. Lab. fee $7.00. Lecture 1:30 TT; 4 hrs. lab.; 2 hrs. quiz. Mr. Winans and staff.

65. GENERAL PHYSICS. Yr; 3 cr. Primarily for sophomores in physical education and home economics. Lab. fee $3.60. Lecture 11 Tu; 2 hrs. lab.; 2 hrs. quiz. Mr. Winans and staff.

91. SOUND IN ITS RELATION TO SPEECH AND MUSIC. II; 1 cr. A non-mathematical treatment of sound primarily for those who have had no other work in physics. Students who have previously studied sound in an elementary college course are required to do some extra work. Not open to freshmen. Lecture-conference 8 W. Mr. Winans.

100. SENIOR THESIS. Yr; 2 cr. Lab. fee $3.00 a credit. Staff.

102. ADVANCED HEAT. I; 3 cr. Prerequisite: Physics 1a or 31a or 51 or 54. Properties of real gases, elementary kinetic theory and thermodynamics. Laboratory practice in modern methods of temperature measurement, calorimetry and the thermal properties of gases and vapors. Lab. fee $6.50. Lecture-conference 9 Th: lab. 1:30-5:30 Th. Mr. Rollefson.

103. ADVANCED LIGHT. II; 3 cr. Prerequisite: Physics 1b or 31b or 52 or 54. Elementary theory of thick lenses, interference, diffraction and polarization, with corresponding laboratory work. Lab. fee $6.50. Lecture-conference 9 Th; lab. 1:30-5:30 Th. Mr. Rollefson.

104a. ADVANCED ELECTRICITY AND MAGNETISM. I; 3 cr. Prerequisites: Physics 1b or 31b or 52 or 54 plus EE 1. Electro- and magneto-statics, electromagnetism. Accurate measurement of electrical quantities. Magnetic properties of solid bodies. Lab. fee $3.00. Lecture-conference 9 TuS; lab. 1:30-3:30 Tu. Mr. Wahlin and staff.

104b. ADVANCED ELECTRICITY. II; 3 cr. Prerequisites: Physics 104a and calculus or concurrent registration. Alternating currents, high frequency oscillatory currents, vacuum tubes. Certain phases of modern experimental physics are discussed and dealt with in the laboratory. Lab. fee $3.00. Lecture-conference 9 TuS; lab. 1:30-3:30 Tu. Mr. Wahlin and staff.

106. Ionization in Gases and Related Phenomena. I; 2-3 cr. Gas discharge phenomena, critical potentials, fluorescence, ionization processes. 8 MWF. Mr. Winans.

112. Introduction to Atomic Structure. I; 3 cr. Nuclear atom, Bohr-Sommerfeld theory, spectral series, wave model, electron spin, vector model, complex spectra, periodic table, x-ray spectra. 9 MWF. Mr. Mack.

115. Introduction to Thermodynamics. I; 3 cr. First and second laws, thermodynamic equilibrium, Maxwell's relations, ideal and real gases, free expansion, Joule-Kelvin effect, thermodynamic temperature scale. 8 TTS. Mr. Roebuck.

116. Electric Circuits and Electromagnetic Waves. I; 3 cr. Theory of electric circuits, alternating currents, vacuum tube oscillators, transmission lines. 10 MWF. Mr. Wahlin.

117. Physical Optics. II; 3 cr. Interference, diffraction and polarization phenomena; wave surfaces; resolving power of optical instruments; magneto-optics. Offered 1939-40 and in alternate years. 9 TTS. Mr. Ingersoll.

118. Kinetic Theory of Matter. I; 3 cr. A discussion of the gaseous, liquid, and solid states of matter in terms of the kinetic theory. Practical applications in physics, physical chemistry, and engineering. 9 TTS. Mr. Ingersoll.

119. Radiation, Ultraviolet to Infrared. II; 1 cr. Prerequisite: Physics 1b or equivalent, or concurrent registration. Non-mathematical lectures on radiation, including radium (gamma) rays, x-rays, ultraviolet, visible, infrared and longer waves, their properties, physiological effects (Vitamin D) and biological applications. 3:30 Th. Mr. Ingersoll.

120. Colloquium. Yr; 1 cr. Discussion of current literature with main emphasis on experimental physics. 4 F. Mr. Breit.

124. Mathematical Theory of Heat Conduction. II; 2-3 cr. Fourier's series and integrals and their applications to heat conduction problems. Applications in the fields of physics, engineering, and geology. Offered 1938-39 and in alternate years. 9 TTS. Mr. Ingersoll.

126. Recent Developments in Experimental Physics. II; 3 cr. X-rays and crystal structure, determination of electronic charge, Compton effect, thermionics, photoelectric effect. 10 MWF. Mr. Wahlin.

134. Introduction to Band Spectra and Molecular Structure. II; 3 cr. Quantum theory of atomic and molecular spectra, Raman effect, molecular constants, dissociation, isotope effect, special band spectra. Offered 1938-39 and in alternate years. 9 MWF. Mr. Winans.

200. Graduate Research. Yr; *cr. Lab. fee $6.00. Staff.

210. Introduction to Theoretical Physics. Yr; 3 cr. Brief treatment of electricity and magnetism, electromagnetic theory of light, mechanics, statistical mechanics as related to thermodynamics, quantum theory. Emphasis on physical point of view rather than on mathematical manipulation. Offered 1938-39 and in alternate years. 10 TTS. Mr. Breit.

211. Advanced Dynamics. Yr; 3 cr. Centralized coordinates, Lagrange's and Hamilton's equations, free and forced vibrations, elements of hydrodynamics and of the theory of elasticity. Offered 1939-40 and in alternate years. 10 MWF. Mr. March.

212. Quantum Mechanics and Atomic Structure. Yr; 3 cr. Bohr-Sommerfeld theory, Correspondence Principle, dispersion, matrix mechanics, wave mechanics. Applications to line spectra, band spectra, laws of radiation, specific heats. Offered 1939-40 and in alternate years. 10 TTS. Mr. Breit.

214. Application of Thermodynamics to the Properties of Matter. II; 3 cr. Phase rule, evaporation in single- and two-component systems, fusion, sublimation, mixtures, Gibbs' model, liquefaction of gases, Nernst Heat Theorem. Offered 1939-40 and in alternate years. 8 TTS. Mr. Roebuck.

215. Theory of Electricity. Yr; 3 cr. A course devoted to the mathematical treatment of the Maxwell-Lorentz theory of electrodynamics. Offered 1938-39 and in alternate years. 11 MWF. Mr. Sokolnikoff.

221. Seminary in Quantum Mechanics. Yr; 1 cr. 7:30-9:30 p.m. W. Discussion of current literature in theoretical physics. Mr. Breit.

229. Nuclear Physics. II; 2-3 cr. Theoretical discussion of alpha ray emission, artificial disintegration, beta and gamma ray spectra. Offered 1939-40 and in alternate years. 3:30-5:30 Tu. Mr. Breit.

232. Special Topics in Theoretical Physics. I; 2-3 cr. Offered 1939-40 and in alternate years. II; 2-3 cr. Offered 1938-39 and in alternate years. Discussion of recent developments. 3:30-5:30 Tu. Mr. Breit.

270. Relativity, Special and General. I; 2-3 cr. Experimental basis, tensors, dynamical laws, stress energy tensor, electromagnetic mass, Einstein's theory of general relativity. Offered 1938-39 and in alternate years. 3:30-5:30 Tu. Mr. Breit.

Courses in electromagnetic theory of light and radiation will be offered when demand warrants.

PHYSIOLOGY

Walter Joseph Meek, Ph.D., *Professor of Physiology, Chairman*

17. Survey of Physiology: Functions of the Human Body. I; 4 cr. A brief course designed to fulfill in part the non-professional science option for the B.A. degree. May be credited by students in the Ph.B. course as a free elective only. Should preferably be preceded by a course in chemistry, but open to all students. Lectures, quizzes, and demonstrations giving a general knowledge of the structure and functions of the human body. 10 MWF; lab. 1:30-3:30 or 3:30-5:30 Th. Lab. fee $3.00. Mr. Meek.

Physiology is a department of the Medical School, the announcement of which should be consulted for information relative to other courses.

POLISH

Joseph Anthony Birkenmajer, Ph.D., *Acting Professor of Polish*

The elementary courses in Polish have been planned to meet the needs of those who have begun the language in high school, as well as of those who take it up for the first time in college. One unit (year) of high-school work is assumed to be equivalent of 4 credits, or one semester, of college work, but all entering freshmen and transfers continuing their work in language are assigned

to courses on the basis of placement tests given during Freshman Period. These tests may permit a student to enter a more advanced course but will not give extra credit toward graduation.

See page 57 for attainment tests which may, at the option of the student, be substituted for the required number of credits in meeting the language requirements for the bachelor's degree. Lists of suggested readings in preparation for the proficiency test may be obtained from the departmental office.

MAJOR. 24 credits in advance of 1b. By faculty requirement, students choosing a foreign language major must present at least eight credits in a second foreign language.

TEACHING MAJOR AND MINOR. See School of Education.

POLISH CLUB. The University of Wisconsin Polish Club affords students opportunities to hear talks about the country whose language they are studying, to participate in programs, and to converse in the language in which they are interested.

1a. FIRST-SEMESTER POLISH. I; 4 cr. For students who have not studied Polish. Study of the elements of phonetics and morphology. 1:30 MTWT. Mr. Birkenmajer.

1b. SECOND-SEMESTER POLISH. II; 4 cr. Prerequisite: Polish 1a or consent of instructor. Morphology of Polish continued. Reading of simple texts. 1:30 MTWT. Mr. Birkenmajer.

10a. THIRD-SEMESTER POLISH. I; 3 cr. Prerequisite: Polish 1b or consent of instructor. Primarily a reading course with grammatical review. 2:30 MWF. Mr. Birkenmajer.

10b. FOURTH-SEMESTER POLISH. II; 3 cr. Prerequisite: Polish 10a or consent of instructor. Primarily a reading course with grammatical review. 2:30 MWF. Mr. Birkenmajer.

13. RAPID READING. Yr; 1 cr. Prerequisite: Concurrent registration in Polish 1b or consent of instructor. This course aims to give a rapid reading knowledge of simple journalistic Polish. 3:30 M. Mr. Birkenmajer.

31. SELECTED MASTERPIECES. Yr; 3 cr. Prerequisite: Polish 10b or knowledge of Polish and consent of instructor. Selected masterpieces of Polish literature will be read and discussed. Hours to be arranged. Mr. Birkenmajer.

80. SUPERVISED INDIVIDUAL READING. Yr; 2-3 cr. For upper-group students in Polish who have passed intermediate test in Polish or have received a grade of A in Polish 10b or equivalent, and desire further practice in reading Polish in subject matter related to their major field of study. Each individual arrangement requires the approval of the Dean and of the instructor.

100. SENIOR THESIS. Yr; 2-3 cr. Well-qualified students majoring in Polish may apply to the Chairman of the Department for permission to write a thesis in their senior year.

120. SURVEY OF POLISH LITERATURE. Yr; 2 cr. Prerequisite: Polish 10b or knowledge of Polish and consent of instructor. Lectures on Polish liter-

ary history, some assigned reading, and study of the literary aspects of the works read. Hours to be arranged. Mr. Birkenmajer.

200. INDIVIDUAL RESEARCH. Yr; Credit and conference hours to be arranged. Graduate students with special permission may do research in some field. Candidates should consult the Chairman of the Department.

220. SEMINARY IN POLISH. Yr; 2 cr. Prerequisite: Graduate standing. Conducted in Polish, with the work varying from year to year according to the needs of the students. Hours to be arranged. Mr. Birkenmajer.

TEACHERS' COURSE

THE TEACHING OF POLISH. See School of Education.

POLITICAL SCIENCE

FREDERIC AUSTIN OGG, Ph.D., LL.D., *Professor of Political Science, Chairman*
JOHN MERRIMAN GAUS, Ph.D., *Professor of Political Science (on leave I)*
CHESTER LLOYD JONES, Ph.D., *Professor of Economics and Political Science*
GRAYSON LOUIS KIRK, Ph.D., *Professor of Political Science*
WALTER RICE SHARP, Docteur en Droit, *Professor of Political Science*
EDWIN EMIL WITTE, Ph.D., *Professor of Economics*
JOHN T. SALTER, Ph.D., *Associate Professor of Political Science*
LLEWELLYN PFANKUCHEN, Ph.D., *Assistant Professor of Political Science*
GLENN BRYAN MCCLELLAND, M.A., *Instructor in Political Science*

The courses offered by the Department of Political Science are designed to afford a well-rounded view of the nature, functions, and activities of government and to give substantial acquaintance with public affairs, state and local, national, and international. Some of them are intended primarily to furnish information requisite for intelligent citizenship, along with the mental training which forms a part of any liberal education. Others involve more specialized study, with a view to comprehensive knowledge of legislation, administration, international relations, and public law. Many are of such nature as to contribute definitely to training for public service. Except as qualified by the prerequisites indicated below, courses are open to students who have completed their freshman year, and all are elective. Course 7 is given every semester and, being designed for sophomores, serves as a gateway to the more advanced and specialized courses.

MAJOR IN SOCIAL SCIENCE WITH POLITICAL SCIENCE AS A FIELD OF CONCENTRATION. The requirements in political science when offered as a field of concentration are: (1) 25 credits, including thesis if one is written; (2) course 7; (3) other courses so selected that the total political science offering will include at least one general course in each of the first four groups enumerated below, and in the case of Group II, one course in addition to course 7. Students offering this field may be required to take courses outside of the department which are related to their political science programs.

THESIS. Students who, by their attainments in political science, and by personal characteristics, aptitudes, and interests, have shown that they can probably gain more from a thesis than from work for equivalent credits in courses, may be required by their adviser to write a thesis (4-6 cr.).

HISPANIC STUDIES AS A FIELD OF CONCENTRATION. Students interested in this major field should consult this announcement on page 60.

I. POLITICAL THEORY

101. Introduction to European Political Thought. I or II; 3 cr. Prerequisite: Junior standing or consent of instructor. The development of political ideas in relation to general historical movements, and a special study of the writings of a selected number of classical political theorists. Mr. McClelland.

165. History of American Political Thought. I or II; 3 cr. Prerequisite: Full sophomore standing. A study of the development of political ideas in relation to the social and economic environment of each significant historical period. Mr. McClelland.

166. Contemporary American Political Thought. I or II; 3 cr. Prerequisite: 101 or 165 or work in American history or literature. An analysis of some of the ideas which have been proposed for the solution of our international and domestic problems. Mr. McClelland.

245. History of European Political Thought. Yr; 3 cr. Prerequisite: Graduate standing or consent of instructor. A study of the political thought developed out of the Greek city state, the Roman Empire, the medieval state and the modern state. Mr. Gaus.

II. AMERICAN GOVERNMENT AND PUBLIC LAW

7. American Government and Politics (National). I, II; 3 cr. Not open to freshmen. A critical analysis of the chief problems of American national politics. Special emphasis given affairs of current importance. Mr. Kirk and staff.

13. Municipal Government. I; 2 cr. Prerequisite: Sophomore standing. The organization and politics of city governments, including the city as a political unit, home rule, the mayor, the city council, commission and city manager forms of government, and municipal politics. Mr. Salter.

112. Constitutional Law. I; 3 cr. Prerequisite: One course in political science or consent of instructor. The American constitution in practice as seen in the jurisprudence of the Supreme Court. The powers of the national government are emphasized. Students desiring a fuller view of the position of the states should elect Political Science 144. Mr. McClelland.

122. Political Parties and Public Opinion. I, II; 3 cr. Prerequisite: Full sophomore standing. A description and critical examination of the party process in the United States. Problems of politics, including party organizations, politicians, leaders, human nature in politics, the spoils system, nominating systems, campaigning for public office, the direct primary, political campaigning, expenditures, the conduct of elections, reform organizations, and participation in politics. Mr. Salter.

123. American Diplomacy: Organization and Practice. I; 2 cr. Prerequisite: Polit. Sci. 7. State department; foreign service, diplomatic and consular; treaty-making power; principles of foreign policy. Consultation regarding entrance to the foreign service. Mr. Pfankuchen.

126. Legislation. II; 3 cr. Prerequisite: Polit. Sci. 7 or consent of instructor. Principles, procedures, and problems of statute law making,

with emphasis on state legislation. (Alternated with Polit. Sci. 139.) Offered 1938-39. Mr. Witte.

134. County and Township Government in the United States. I; 2 cr. Prerequisite: Full sophomore standing. A study of rural local institutions and problems, particularly in the Middle West.

135. Municipal Administration. II; 3 cr. Prerequisite: Polit. Sci. 7 or 13, or senior standing. A survey of the work of city government: city planning, zoning, engineering problems, crime and police administration, parks and playgrounds, health, housing, poor relief, transportation, etc. Mr. Salter.

139. State Government. II; 3 cr. Prerequisite: Political Science 7 or consent of instructor. Emphasis on the administrative organization and activities of the state of Wisconsin with comparison of those in other states. (Alternated with Political Science 126. Not offered 1938-39.) Mr. Witte.

144. Police Power and Social Legislation. II; 3 cr. Prerequisite: One course in political science or consent of instructor. The position of the states under the federal constitution as determined by the Supreme Court. This course is supplementary to, but independent of, Polit. Sci. 112. Mr. Pfankuchen.

148. Pro-Seminary in Political Parties and Public Opinion. II; 2 cr. Prerequisite: Graduate standing or consent of instructor. Traits and techniques of representative party leaders; their relation to public opinion and the voter. A survey of the literature; case studies of specific individuals and concrete situations. Mr. Salter.

152. Legislation for the Conservation of Natural Resources. II; 3 cr. Prerequisite: Junior standing or consent of instructor. Problems of wastage of soil, water, forests, and mineral resources are studied in the light of existing structures of law and government. Efforts to remedy this wastage through legislation at the various levels are surveyed. General readings and readings in statutes and cases. Mr. Pfankuchen.

261. Seminary in Legislation and Constitutional Law. II; 2 cr. Mr. Pfankuchen.

III. FOREIGN AND COMPARATIVE GOVERNMENT

127. Comparative Government: Parliamentary Democracy. I; 3 cr. Prerequisite: Polit. Sci. 7 or a course in recent European history. An analytical study of the development and operation of constitutional democracy as exemplified by the parliamentary systems of Great Britain, France, and Switzerland, with special reference to the conditions under which democracy can best meet the challenge of dictatorship. Mr. Sharp.

128. Comparative Government: Contemporary Dictatorships. II; 3 cr. Prerequisite: Polit. Sci. 7 or 127 or a course in recent European history. An interpretation of the historical and theoretical backgrounds, techniques, and institutional consequences of the Russian Soviet, Italian Fascist, and German National Socialist Revolutions. Mr. Sharp.

143. Introduction to Public Administration. I; 3 cr. Prerequisite: Polit. Sci. 7. The rôle of administration in modern government; problems of organization and control; determination of service areas; personnel management and bureaucracy; public budgeting; politics and administration—with special attention to the administrative aspects of American national "planning." Mr. Gaus or Mr. Sharp.

250. Advanced Comparative Government. Yr; 3 cr. Polit. Sci. 127 and 128 are designed primarily for undergraduates. Graduate students are expected ordinarily to take Polit. Sci. 250. Emphasis in the first semester is on the governments of England and the United States compared; in the second, on the governments of Continental Europe, especially of France and Germany. Mr. Ogg.

258. Seminary in Public Administration. I, II; 2 cr. Prerequisite: Graduate standing or consent of instructor. Mr. Gaus, Mr. Sharp.

IV. INTERNATIONAL LAW, ORGANIZATION, AND RELATIONS

118. Principles of International Law: Law of Peace. I; 3 cr. Prerequisite: One course in political science or one in modern history. An introductory survey of the rules governing international intercourse in time of peace, as illustrated in texts and cases. Mr. Pfankuchen.

119. Principles of International Law: Law of War and Neutrality. II; 3 cr. Prerequisite: One course in political science or one in modern history. Outbreak of war, rights and duties of combatants and noncombatants on land and sea, the status of neutrality, and the rights and duties of neutrals. Texts and cases, class discussions, and hypothetical cases. Mr. Pfankuchen.

125. Survey of World Politics. I; 3 cr. Prerequisite: Full sophomore standing. An analytical introduction to the foundation of international relations: nationalism; imperialism; racial, populational, and economic factors; war; the settlement of international disputes by methods other than war; recent and contemporary foreign policies. Mr. Kirk and staff.

131. The United States and Latin America. I, II; 3 cr. Prerequisite: Full sophomore standing. Diplomatic and economic relations of the United States with the Latin American states, and their bearings upon world politics. Mr. Lloyd Jones.

132. Africa in World Politics. I; 2 cr. Prerequisite: Political Science 125 or consent of instructor. Imperialist rivalries in Africa and the problems of colonial administration. Mr. Kirk.

133. The Near and Middle East in World Politics. II; 2 cr. Prerequisite: Political Science 125 or consent of instructor. Post-war international relations and problems of the regions indicated; special emphasis upon India. Mr. Kirk.

137. International Organization and the League of Nations. I, II; 3 cr. Prerequisite: Polit. Sci. 125 or consent of instructor. An evaluation of existing agencies and procedures of international coöperation as conditioned by competing national interests and policies, with special attention to the rôle of the United States. Mr. Sharp.

138. Contemporary Problems in International Relations. II; 2 cr. Prerequisites: Senior standing and a grade of B in Polit. Sci. 125 or consent of instructor. A pro-seminar in selected aspects of international institutions and politics. Mr. Sharp, Mr. Kirk.

140. Far Eastern Politics. I, II; 3 cr. Prerequisite: Full sophomore standing. International relations and governmental developments in the Far East from the opening of active contact with western states and peoples to the present day. The far eastern interests and policies of the United States are given special emphasis. Mr. Ogg.

251. Seminary in Latin American Development and Trade. (Also in Department of Economics). Yr; 2 cr. Mr. Lloyd Jones.

255. Seminary in Far Eastern Politics. Yr; 2 cr. Deals principally with topics—diplomatic, political, and economic—relating to the Far East or to the Pacific area generally. Either semester's work may be taken separately, and, normally, graduate students should enroll in this course rather than in Polit. Sci. 140. Mr. Ogg.

259. Seminary in International Law. II; 2 cr. Mr. Pfankuchen.

260. Seminary in International Organization and Relations. I, II; 2 cr. Mr. Sharp, Mr. Kirk.

V. MISCELLANEOUS

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

180. Special Work. I, II; 2 or 3 cr. This course is intended primarily for upper-group undergraduates, but may be taken by graduates. The work is carried on individually, under the direction of a member of the staff. Open only to upper-group majors in the department by consent of instructor.

275. Scope and Methods of Political Science. Yr; 2 cr. Prerequisite: Graduate standing. Required of all students who are candidates for the doctor's degree. Mr. Gaus.

PSYCHOLOGY

V. Allen Charles Henmon, Ph.D., *Professor of Psychology, Chairman*
Hulsey Cason, Ph.D., *Professor of Psychology*
Kimball Young, Ph.D., *Professor of Social Psychology*
Theodore L. Torgerson, Ph.D., *Associate Professor of Education*
Kai Jensen, Ph.D., *Associate Professor of Education*
Clarence Edwin Ragsdale, Ph.D., *Associate Professor of Education*
Harry Frederick Harlow, Ph.D., *Assistant Professor of Psychology*
Richard Wellington Husband, Ph.D., *Assistant Professor of Psychology*

Major. A minimum of 24 credits, including courses 103, 104, and a thesis. None of the courses in this department is open to freshmen. *Psychology 1 is prerequisite to all other courses in psychology.*

The following duplicate listings of courses, offered regularly by the School of Education and the Department of Sociology, are open to psychology majors and other qualified students: Educational Psychology 107, 109, 119, 120; Education 127, 128, 225-226; Sociology 139, 197, 214, 233, 237, 239, 297. The names of the instructors in charge of these courses are listed above.

1. INTRODUCTION TO PSYCHOLOGY. I, II; 3 cr. A study of different aspects of human behavior: evolutionary antecedents, emotions, motivation, sensation, perception, learning, memory, intelligence, personality. Lectures and discussion sections. 9 TT+q. Fee $.25. Mr. Husband, Staff.

50. APPLIED PSYCHOLOGY. II; 2 cr. Vocational guidance and choice; selection of workers; business psychology; personnel; advertising; applications of psychology to professions. 11 TT. Mr. Husband.

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

103. EXPERIMENTAL PSYCHOLOGY. I; 3 cr. Lectures, reading, and experiments on psychological methods, muscular functions, sensory functions, neural functions, reflex action, native reaction tendencies, and the affectivities. Fee $1.00. Prerequisite: Junior standing. 9 TT and lab. Mr. Cason.

104. EXPERIMENTAL PSYCHOLOGY. II; 3 cr. Lectures, reading, and experiments on attitude, work, general nature of learning, relatively simple learning processes, imagery, perception, language and speech, complex learning processes, problem solving and reasoning, intelligence, and esthetic activities. Fee. $1.00. Prerequisite: Junior standing. May be taken without Psychology 103. 9 TT and lab. Mr. Cason.

106. ABNORMAL PSYCHOLOGY. II; 3 cr. Lectures, reading and discussion on disorders of sensation, perception, learning, and emotions; psychoanalytic principles; abnormalities of intelligence; sleep and dreams; hypnotism; neurasthenia; hysteria; alcoholic psychoses; dementia praecox, manic depressive psychosis; paranoia; and paresis. Prerequisites: Psychology 1 or equivalent and junior standing. Mr. Cason.

107. PSYCHOLOGY OF MOTOR LEARNING. (See School of Education, Educational Psychology 107, page 148.)

108. HUMAN EMOTIONS AND MOTIVATION. I; 3 cr. Influence of emotions and motivation on goals, customs, interests, learning, reasoning, and behavior problems in children and adults. 11 TT+q. Fee $1.00. Mr. Harlow.

109. MODERN SYSTEMS OF PSYCHOLOGY AND EDUCATION. (See School of Education, Educational Psychology 109, page 148.)

119. CHILD DEVELOPMENT. (See School of Education, Child Development, page 148.)

120. CHILD DEVELOPMENT: THE PSYCHOLOGY OF ADOLESCENCE. (See School of Education, Child Development, page 148.)

127. MENTAL TESTING (GROUP). (See School of Education, Measurements, Statistics, and Scientific Techniques.)

128. BINET TESTING. (See School of Education, Measurements, Statistics, and Scientific Techniques, page 148.)

130. STATISTICAL METHODS IN PSYCHOLOGY. I; 2 cr. Prerequisites: Psychology 1 and junior standing. 11 TT. Mr. Husband.

139. SOCIAL PSYCHOLOGY. I; 3 cr. Place of emotions, habits, and of fantasy and objective thinking in social behavior. Prerequisites: Psychology 1 and junior standing, or junior major in sociology. 10 MWq. Mr. Young and staff.

143. The Psychology of Individual Differences and the Measurement of Intelligence. II; 3 cr. Individual differences in mental traits and their significance, mental inheritance, the correlation of mental abilities, and the measurement of intelligence. Prerequisites: Psychology 1 and junior standing. 11 MWF. Mr. Henmon.

144. The Psychology of Learning. I; 3 cr. The original nature of man, experimental studies of learning; mental work and fatigue. Prerequisites: Psychology 1 and junior standing. 11 MWF. Mr. Henmon.

147. Genetic Psychology. I; 3 cr. A study of the origin of psychological processes, including general genetic principles; psychological heredity; early biological influences; native and acquired reaction tendencies; the origin of speech; thinking, learning, antisocial conduct, and personality. Prerequisites: Psychology 1 or equivalent and junior standing. 9 MWF. Mr. Cason.

149. Animal Behavior. I; 2 or 3 cr. Maturation, motivation and learning in animals, particularly mammals. Prerequisite: 10 credits of biology may be substituted for Psychology 1 as a prerequisite for this course. Fee $1.00. 10 TT. Mr. Harlow.

150. Animal Behavior: The Primates. II; 2 or 3 cr. Evolution from monkey to man of intelligence, social behavior, emotion, growth and bodily structure. Prerequisite: Psychology 1 or 10 credits of biology. Fee $1.00. 10 TT. Mr. Harlow.

152. Animal Behavior Problems. I, II; 2 or 3 cr. Individual experimental studies in animal behavior. Prerequisite: Consent of instructor. Fee $1.00 per credit. 5-6 Tu.+lab. Mr. Harlow.

154. Physiological Psychology. II; 3 cr. The physiological mechanisms determining human behavior. Fee $1.00. 9 MWF. Mr. Harlow.

161. Modern Viewpoints in Psychology: Behaviorism, Gestalt, and Psychoanalysis. I; 3 cr. The theoretical and systematic backgrounds underlying these modern viewpoints in psychology. Historical foundations. 10 MWF. Mr. Husband.

180. Independent Reading. Yr; 1-3 cr. Prerequisites: Graduate major in psychology and consent of instructor. See section 20, page 66. Staff.

197. Personality and Social Adjustment. II; 3 cr. Personality treated from the angle of group participation, especially in the family, play group, gang, neighborhood, school, church, and various community groups. Literature on problem children, juvenile delinquency, adolescent and adult maladjustment examined critically. Prerequisites: Psychology 1 or Sociology 139, and junior standing. Fee $1.50. 10 MWq. Mr. Young and staff.

200. Research. Yr; *cr. Staff.

201. Seminar. Yr; 1 cr. Required of all graduate majors in psychology. 4-5 W. Mr. Henmon and staff.

210. Seminary in Aptitude Testing. Yr; 2 cr. Prerequisite: Consent of instructor. Mr. Henmon.

214. Language and Culture. II; 2 cr. The interrelations of culture and language. The discussion will follow such topics as forms of thought;

interplay of language and symbolic behavior; manner in which language is influenced by culture and *vice versa;* role of language in personality organization and in social control. Prerequisites: Graduate standing and consent of instructor. 1:30-3:30 M. Mr. Goldenweiser, Miss Gower, and Mr. Young.

215. Social Learning. I; 2 cr. A joint seminar of the departments of psychology, sociology, and education for graduate students interested in the study of social factors affecting learning and behavior. Prerequisite: Consent of instructor. 2:30-4:30 M. Mr. Henmon, Mr. Young, Mr. Barr.

218. Seminary in General Psychology. Yr; 2 cr. The subject matter changes from year to year. The seminary deals with selected topics in Experimental Psychology, the Psychology of Learning, Abnormal Psychology, or Genetic Psychology. Prerequisite: Senior major in psychology. Hours to be arranged. Mr. Cason.

225-226. Test Construction. (See School of Education, Measurements, Statistics, and Scientific Techniques.)

233. Research in Social Psychology. II; 2 cr. Qualitative and quantitative methods of research with reference to selected problems in the field of social psychology. Detailed analysis of relationships between the case study and statistics in studying personality and social attitudes. Prerequisites: Sociology 132 and either 139 or 197, or equivalents. Fee $2.00. Hours to be arranged. Offered 1938-39 and in alternate years. Mr. Young and Mr. McCormick.

237. Psychology of Public Opinion and Leadership. I; 2 cr. A social psychological analysis of such matters as propaganda, of lobby and pressure groups, and of censorship as these influence public opinion. The role of the leader in reference to public opinion and other forms of social control. Prerequisite: Sociology 139 or its equivalent or consent of instructor. Fee $1.00. 2:30-4:30 M. Offered 1938-39 and in alternate years. Mr. Young.

239. Advanced Social Psychology. I; 2 cr. The theoretical and systematic foundations of social psychology. 2:30-4:30 M. Offered 1939-40 and in alternate years. Mr. Young.

250. Seminary in Applied Psychology. II; 2 cr. Prerequisite: Open to those who earned "B" in Course 50 or consent of instructor. 7:30 p.m. Tu. Mr. Husband.

254. Seminary in Physiological Problems and Behavior. I; 2 cr. Prerequisite: Consent of instructor. 7:30-9:30 p.m. M. Mr. Harlow.

261. Seminar in Systematic Psychology. I; 2 cr. Prerequisites: Graduate standing and consent of instructor. 7:30 p.m. Tu. Not offered 1938-39. Mr. Husband.

297. Personality Problems. II; 2 cr. Selected topics which relate the development of personality to social-cultural environment, especially in relation to problems of the family, school, delinquency, and adult maladjustment. Prerequisite: Graduate standing and consent of instructor. Fee $1.00. 7:15-9:15 M. Mr. Young.

SCANDINAVIAN LANGUAGE AND LITERATURE

EINAR INGVOLD HAUGEN, Ph.D., *Thompson Professor of Scandinavian Languages, Chairman*
WILLIAM ELLERY LEONARD, Ph.D., *Professor of English*

The Department of Scandinavian, which was established in 1875, offers a group of courses designed to familiarize students with the culture of the North. The first two year-courses should enable the student to read modern Norwegian prose of average difficulty. Courses 71-82 are offered as Comparative Literature courses for those who are not familiar with the original languages; parallel courses are also offered for language credit.

Students with a speaking knowledge of some Scandinavian language are advised to consult with the chairman concerning the course best suited to their requirements.

Students wishing to take a proficiency test in Scandinavian are advised to begin Norwegian in their freshman year and should announce their intention as soon as possible. Courses 21 and 80 or equivalent preparation are required for the proficiency test. A list of requirements may be secured at the Scandinavian office, 109 Bascom Hall.

MAJOR. For a major in Scandinavian the student must earn 18 credits beyond fourth semester, including 4 credits of 80 or 100 and Old Norse. A reading knowledge of German is also required.

1a. FIRST-SEMESTER NORWEGIAN. I; 4 cr. Open to freshmen. Pronunciation, grammar drill, written and oral exercises, idioms. 1:30 MTWT. Miss Rölvaag.

1b. SECOND-SEMESTER NORWEGIAN. II; 4 cr. Reading of easy selections; spoken and written practice in use of language. Occasional talks on Norway, its people, literature, history. 1:30 MTWT.

10a. THIRD-SEMESTER NORWEGIAN. I; 3 or 4 cr. Reading in selected works of Ibsen and Björnson; folk-tales; suggestion of literary trends, especially in first half of the nineteenth century. Additional credit earned by extra reading. 2:30 MTT. Miss Rölvaag.

10b. FOURTH-SEMESTER NORWEGIAN. II; 3 or 4 cr. Continuation of third semester. Occasional introduction of Swedish and Danish material to illustrate kinship of the Scandinavian tongues. 2:30 MTT.

21. SURVEY OF NORWEGIAN LITERATURE. Yr; 3 cr. A survey of Norwegian letters from the eighteenth century to about 1900, with readings in the major writers from Holberg to Hamsun. The second semester will be devoted exclusively to the prose plays of Henrik Ibsen. 11 MWF. Offered 1940-41. Mr. Haugen.

24. NORWEGIAN CLASSICS. Yr; 3 cr. The first semester will concentrate on the dramatic and narrative masterpieces of the nineteenth century, especially Ibsen's *Peer Gynt* and the novels of Alexander Kielland. The second semester will offer readings in the mythology and folklore of ancient and modern Norway. 11 WF; quiz. Offered 1939-40. Mr. Haugen.

27. TWENTIETH-CENTURY WRITERS. II; 3 cr. The first semester will be devoted to the writings of Knut Hamsun, the second to those of Sigrid Undset. 11 WF; quiz. Offered 1938-39. Mr. Haugen.

80. Supervised Individual Reading. Yr; 2 cr. For upper-group students with a good reading knowledge of a Scandinavian language who wish to pursue reading in some field aside from literature. The choice of texts and the progress of reading will be carefully supervised by the instructor. If desired, the reading may lead up to the writing of a topic. Maximum number of credits: six. Mr. Haugen.

100. Senior Thesis. Yr; 2 cr. May be elected in the junior or senior years after conference with the chairman. Mr. Haugen.

163. Old Norse. Yr; 3 cr. 1:30 MWF. Mr. Leonard.

164. Introduction to Scandinavian Linguistics. II; 3 cr. A survey of linguistic development in Scandinavia from the earliest times to the present, with selected readings in the various languages. Open to graduate students with a reading knowledge of at least one Germanic language beside English. Offered 1938-39. 1:30 MWF. Mr. Haugen.

200. Advanced Independent Work. 2 cr. May be elected by graduate students wishing to do research in the fields of Scandinavian language or literature. Mr. Haugen.

COURSES IN ENGLISH TRANSLATION

These courses may not be credited toward the language requirements of the University, nor toward a major. They are offered for the benefit of students who wish to acquaint themselves with the literatures of Scandinavia, but who are unable to read the original languages. Six semesters are offered in a three-year rotation.

71. Literature of the Vikings. I; 2 cr. The literary monuments of ancient and medieval Scandinavia, particularly Norway and Iceland. Germanic society; the folk migrations; the runes; Volsungs and Niebelungs; the poetic Edda; paganism and Christianity; the Sagas; Snorri Sturluson and the prose Edda. Offered 1941-42. 11 MW. Mr. Haugen.

72. Scandinavian Mythology and Folklore. II; 2 cr. Popular beliefs in Scandinavia from the earliest times; primitive religion; magic and witchcraft; gods and myths; Christian influences; modern folklore; legends, fairy tales, and ballads. Offered 1938-39. 11 MW. Mr. Haugen.

77. Norwegian Literature from Renaissance to Realism. I; 2 cr. Masterpieces of modern Norwegian literature in translation. Ludvig Holberg, the "Moliere of the North"; Romanticism; Björnson's novels of country life; Ibsen's *Brand* and *Peer Gynt;* Realism and the "turbulent eighties"; the turn to Neo-romanticism. Offered 1940-41. 11 MW. Mr. Haugen.

78. Henrik Ibsen: Craftsman of the Modern Drama. II; 2 cr. Lectures and readings in Ibsen's later plays, especially his social and psychological dramas from *A Doll's House* to *When We Dead Awaken.* Discussion of themes, technique, significance in world literature. 11 MW. Offered 1940-41. Mr. Haugen.

81. Modern Scandinavian Fiction. I; 2 cr. Selected readings in English from the great Scandinavian novelists: Knut Hamsun, Selma Lagerlöf, Sigrid Undset, Anderson-Nexoe, Jens Peter Jacobsen, Johan Bojer, and others. Offered 1939-40. 11 MW. Mr. Haugen.

82. DRAMATISTS OF THE NORTH. II; 2 cr. Dramatic literature produced by the contemporaries and successors of Ibsen: Björnson in Norway, August Strindberg in Sweeden; younger dramatists: Gunnar Heiberg; Johann Sigurjonsson, Gustav Wied. Offered 1939-40. 11 MW. Mr. Haugen.

DEPARTMENT OF SOCIOLOGY AND ANTHROPOLOGY

JOHN LEWIS GILLIN, Ph.D., LL.D., *Professor of Sociology, Chairman*
HOWARD BECKER, Ph.D., *Professor of Sociology*
JOHN HARRISON KOLB, Ph.D., *Professor of Rural Sociology*
JOSEPH HOWARD MATHEWS, Ph.D., *Professor of Chemistry*
THOMAS CARSON MCCORMICK, Ph.D., *Professor of Social Statistics*
SELIG PERLMAN, Ph.D., *Professor of Economics (on leave yr.)*
EDWARD ALSWORTH ROSS, Ph.D., LL.D., *Professor of Sociology Emeritus* (I)
KIMBALL YOUNG, Ph.D., *Professor of Social Psychology*
WENDELL BENNETT, Ph.D., *Associate Professor of Anthropology*
ARTHUR FREDERICK WILEDEN, M.S., *Associate Professor of Rural Sociology*
JOHN RECTOR BARTON, B.A., B.D., *Assistant Professor of Rural Sociology*
HELEN ISABEL CLARKE, M.A., *Assistant Professor of Sociology*
LLEWELLYN RATHBUN COLE, M.D., *Assistant Professor of Clinical Medicine*
GEORGE WILLIAM HILL, B.A., *Assistant Professor of Rural Sociology*
CHARLOTTE DAY GOWER, Ph.D., *Assistant Professor of Anthropology*
MORRIS SWADESH, Ph.D., *Assistant Professor of Anthropology and Linguistics*
CHARLES BIRT, LL.B., *Lecturer in Social Work*
SOPHIA SIEBECKER, B.A., *Instructor in Case Work Practice*
ELIZABETH YERXA, B.A., *Lecturer in Social Work*

MAJOR

For *sociology* as a field of concentration thirty credits in sociology are required, including courses 1, 2, 46, 132 and 140. Not less than twenty additional credits must be offered within the Division of the Social Sciences, ten of which may be in this department.

For *anthropology* as a field of concentration thirty credits are also required, including two three-credit courses in sociology in addition to Sociology 46, 106, 110, 132* and 142. Not less than twenty additional credits selected in conference with the adviser must be offered within the Division of the Social Sciences, or in Geography, Geology, Psychology, and Zoology, ten of which may be in this department.

To be eligible for graduation students are required to earn as many grade-points as credits in the major. Certain upper-group students may substitute a thesis for four of the above required credits. This thesis may be written in any one of the fields designated in Groups I-VII as described on subsequent pages. Students not writing a thesis must offer three courses in some one of the designated fields.

*Anthropology majors may, on consultation with their major professor, offer as substitute a specific course, which, if approved by the Department, will be accepted in lieu of Sociology 132.

SOCIAL WORK

PROFESSORS J. L. GILLIN AND HELEN I. CLARKE IN CHARGE

The Department of Sociology and Anthropology has coordinated the university courses which provide background training for social work. By so doing

it has given students the fundamental and technical training which will hasten their preparation for work in the fields of family and child welfare, juvenile protection and probation, medical and psychiatric social work, community organization, and public relief. Some of these courses supply the broad liberal background necessary to an understanding of society, past and present, while others provide technical training in the adjustment of personality to social conditions on the one hand, and of social conditions to personality on the other. Proficient students are recommended directly to social agencies.

At the present time arrangements are made for the student who is looking forward to social work to prepare himself for two different kinds of work,—(1) family case work, and (2) group work. For the first type he does 300 hours of field work in a Madison case work organization; for the second, he does the same amount of field work with the Neighborhood House, the Y.W.C.A., Y.M.C.A., the Boy Scouts, or the Girls Scouts. In both instances the field work is directed through the University. Only a limited number of students can be admitted to these classes. In addition to Sociology 247 (Case Work Practice) those who elect family case work must take Sociology 249 (Case Work Theory) which, for undergraduates admitted to the courses, does not count toward the 120 credits required for graduation, nor toward the 30 credits required for a major in Sociology. Students who take Sociology 148 (Group Work Practice) are required to take Sociology 150 (Group Work Theory) which does not count toward the 30 credits required for a major in Sociology. This rule does not apply to students who do not take Sociology 247 or 148.

CERTIFICATE IN SOCIAL WORK. A certificate in social work is given to graduates of the University of Wisconsin who attain proficiency during two years of supervised field work in social agencies approved by this department, and who pass an examination on the theory and technique of social work.

MASTER OF SCIENCE IN SOCIAL WORK. For an outline of the requirements see the Graduate School bulletin, Division of Social Sciences.

SOCIAL WORK FOR UNDERGRADUATES. During the last three years of the undergraduate work, under the guidance of the adviser, a program should be made up including such of the following courses as are adapted to the kind of social work for which the student is preparing:

SOPHOMORE YEAR

First Semester	Credits	Second Semester	Credits
Econ. 1a—General economics	4	Econ. 1b—General economics	4
Soc. 1—Introductory sociology	3	Soc. 2—Introductory sociology	3
Soc. 46—Social anthropology	3	Psych. 1—Introductory psychology	3

JUNIOR YEAR

Soc. 138—Introduction to social pathology	3	Soc. 145—Field of social work	2
Soc. 141—Poverty and dependency	3	Soc. 161—Criminology and penology	3
Soc. 139—Social psychology	3	Soc. 197—Personality and social adjustment	3
Soc. 132—Social statistics	3	Psych. 107—Abnormal psychology	3
Soc. 25—Rural life	3	Home Econ. 1b—General survey	2-3
Zool. 1—Animal biology	5	Econ. 173—Economics of consumption	3
or			
Zool. 106—Heredity and eugenics	2		
Home Econ. 1a—General survey	2-3		
Pol. Sci. 13—Municipal government	2		
Pol. Sci. 134—County and township government in the United States	2		

SENIOR YEAR

First Semester	Credits
Soc. 148*—Group work practice	3
Soc. 150—Group work theory	2
Soc. 177—Social legislation	2
Soc. 125—Rural sociology	3
Soc. 166—Administration and coordination of social agencies	2
Soc. 247*—Case work practice	3
Soc. 249—Case work theory	2
Econ. 122—Labor problems	3
Econ. 123—Labor legislation	3
Pol. Sci. 143—Introduction to public administration	3

Second Semester	Credits
Soc. 148*—Group work practice	3
Soc. 150—Group work theory	2
Soc. 140—Principles of sociology	3
Soc. 162—Child welfare	2
Soc. 178—Theories of community organization	2
Soc. 247*—Case work practice	3
Soc. 249—Case work theory	2
Pol. Sci. 115—Social problems of municipal governments	3
Pol. Sci. 143—Introduction to public administration	3
Econ. 171—Personnel management	3
Econ. 120—Social insurance	3
Educ. 181—Vocational and educational guidance techniques	2-3

*Which of these two is selected depends upon field for which the student is preparing.

COURSES OF INSTRUCTION

I. SOCIOLOGICAL THEORY

1. INTRODUCTORY SOCIOLOGY. I; 3 cr. The nature of sacred and secular societies; factors of societal maintenance and change; interrelations of personality, social structure, and culture; social organization and its place in culture; major social processes; trends and problems of modern society. Prerequisite: Sophomore standing. Fee $.50. 8 MW, one quiz. Mr. Becker and staff.

2. INTRODUCTORY SOCIOLOGY. II; 3 cr. Population, crime, disease, marriage and divorce, women and children in industry, immigration, poverty, insanity, etc., as they reveal underlying social maladjustments. Prerequisite: Sophomore standing. Fee $.50. 8 MW, one quiz. Mr. Gillin and staff.

100. SENIOR THESIS. Yr; 4 cr. Staff.

139. SOCIAL PSYCHOLOGY. I; (See Group VII). Mr. Young.

140. PRINCIPLES OF SOCIOLOGY. I, II; 3 cr. The social sciences in their connections with sociology; sociology as in interpretative or "understanding" science; values and value-judgments; methodology; culture, social relations, and conduct; dynamics of social processes and structures; applications of sociological analysis toward the understanding of modern social problems. Prerequisites: For sociology majors, Soc. 1 and 2 and junior standing; for others, senior standing or consent of instructor. Fee $.50. 10 MWF. Mr. Becker.

144. CONTEMPORARY SOCIAL MOVEMENTS IN AMERICAN LIFE. II; 3 cr. (This course is the same as Economics 144.) Capitalism, unionism, socialism, and individualistic anti-capitalism, each viewed under the headings of conditions, theories, and movements. Prerequisites: For sociology majors, Sociology 1 and 2, or senior standing. Not offered 1938-39. 9 MWF. Mr. Perlman.

160. FAMILY AND MARRIAGE. II; 3 cr. Nature of the family and its relations with other institutions and groupings. Roles of various social patterns in maintaining the family in past and present. Modern social practices bearing on pre-marital, marital, and extra-marital relations; means for ensuring family integrity. Prerequisite: For sociology majors, one course in sociology or anthropology; for others, junior standing. Fee $1.00. 10 TT, quiz. Mr. Becker.

163. POPULATION PROBLEMS. I; 2 cr. Population pressure, conquest of disease, fall in the birth rate, growth of numbers, prospects of the food supply, control of immigration. Prerequisite: Junior standing. Offered 1939-40. Mr. McCormick.

180. INDEPENDENT READING IN SOCIOLOGY OR ANTHROPOLOGY. Yr; *cr. Reading may be in any field for which student has an adequate background. Open only to upper-group majors in the department by consent of the instructor.

234. STATISTICS IN POPULATION RESEARCH. II; 2 cr. (See Group VI.) Mr. McCormick.

239. ADVANCED SOCIAL PSYCHOLOGY. I; (See Group VII). Mr. Young.

255. SEMINARY: GROUP CONFLICT. I; 2 cr. Causes, phases, and results of conflict between racial, natural, religious, political, and social groups in society; means of avoiding or allaying inter-group antagonisms. Fee $1.00. 1:30-3:30 W. Offered 1939-40 and in alternate years. Mr. Ross.

257. SOCIAL INSTITUTIONS. I or II; 2 cr. Analysis of institutional structure and change within a small number of cultures contrasting markedly with modern Euro-American patterns. Much attention is paid to sources of data and questions of method, and an attempt is made to demonstrate that the study of selected culture cases may yield conclusions of general validity. Prerequisite: Graduate standing or consent of instructor. Fee $1.00. Not offered 1938-39. 3:30-5:30 F or special arrangement. Mr. Becker.

263. MIGRATION, MOBILITY, AND SOCIAL CHANGE. 2 cr. Study of forms of migration: incursive and interstitial-symbiotic nomadisms, exclusive and inclusive conquests, exclusive and inclusive colonizations, and dispersions of various types (rural to urban, urban to rural, etc.). Culture case study method is used, and problems of social change are stressed. Prerequisite: Graduate standing or consent of instructor. Fee $1.00. 3:30-5:30 F or special arrangement. Not given in 1938-39. Mr. Becker.

264. RESEARCH SEMINARY. I; 2 cr. Trend of Marriage and Family Relationships the World Over. Is the goal a single pattern or several? Forces promoting or withstanding change. Offered 1938-39 and in alternate years. Fee $1.00. 1:30-3:30 W. Mr. Ross.

276. HISTORY OF SOCIAL THOUGHT. II; 2 cr. History and interpretation of theories dealing with human conduct, social structures, and institutions from the earliest times to the present. The period from the eighteenth century onward, and the currents of thought flowing into modern sociology, receive most attention. Prerequisite: Graduate standing or consent of instructor. Fee $1.00. 3:30-5:30 F or special arrangement. Mr. Becker.

279. Systematic Sociology. I; 2 cr. Current psycho-sociological and sociological theories and methods are coordinated within a comprehensive system of sociology. Research projects receive much attention. Prerequisite: Graduate standing or consent of instructor. Fee: $2.00. 3:30-5-30 F or special arrangement. Mr. Becker.

280. Reading and Research in Sociology or Anthropology. Yr; *cr. Work suited to individual graduate students may be arranged. Prerequisite: Advanced graduate standing. Staff.

II. ANTHROPOLOGY

46. Introduction to Anthropology. I; 3 cr. Living races, their origins, relations and capabilities; the nature and structure of society; the nature of culture and the mechanics of cultural and social change, with especial reference to current problems. Prerequisite: Sophomore standing. 11 TT, one quiz. Mr. Bennett and staff.

102. Peoples of Africa. I; 3 cr. Ancient and modern cultures of Africa, their origins and development. Prerequisite: Sociology 46 or consent of instructor. 9 TT, 1:30 W. Offered 1939-40 and in alternate years. Mr. Bennett.

104. Peoples of Europe and Asia. II; 3 cr. Modern cultures of Europe and Asia, their origins and development. Prerequisite: Sociology 46 or consent of instructor. 9 TT, 1:30 W. Offered 1938-39 and in alternate years. Mr. Bennett.

105. North American Indian. I; 3 cr. Origins of the American Indian; development of his culture and descriptions of selected groups. Prerequisite: Sociology 46 or consent of instructor. 9 TT, 1:30 W. Mr. Bennett.

106. Introduction to Ethnology. II; 3 cr. Historic cultures of the world; their distributions; interrelations and characteristic institutions. Prerequisite: Sociology 46 or consent of instructor. 11 TT, one quiz. Mr. Bennett.

107. Primitive Religion. II; 3 cr. A study of selected primitive religions from the functional standpoint. Prerequisite: Junior standing or consent of instructor. 9 MWF. Miss Gower.

108. Theories of Culture. II; 3 cr. Study of anthropological theories and methods. Prerequisites: Sociology 46 and senior standing or consent of instructor. 10 TTq. Offered 1938-39 and in alternate years. Miss Gower.

109. Peoples of Oceania. II; 3 cr. Historic cultures of Australia, Melanesia, and Polynesia, with their origins and interrelations. Prerequisite: Sociology 46 or consent of instructor. 9 TT, 3:30 W. Mr. Bennett.

110. Human Pre-History. I; 3 cr. The physical and cultural development of man prior to the Neolithic period. Prerequisite: Sociology 46 or consent of instructor. 9 MWF. Miss Gower.

111. The Nature and Function of Language. I; 3 cr. An orientation course in language in its structural, social and personal aspects, intended for the student in sociology, psychology, linguistics, literature, or for the general student. The subject matter includes language structure and speech be-

havior; the nature and variety of language; linguistic change; dialects, symbolisms; sociological aspects of speech peculiarities, dialects, marginal languages; standard languages, writing; language learning. Prerequisite: Junior standing. 1:30-3:30 Tu., 1:30 W. Offered 1938-39 and in alternate years. Mr. Swadesh.

112. Beginnings of Civilization. II; 3 cr. The development of agriculture, settled life and commerce in Western Asia and their spread into Europe. Prerequisite: Sociology 46 or consent of instructor. 10 TTq. Offered 1939-40 and in alternate years. Miss Gower.

113. The Indian Languages of North America. I; 3 cr. A survey of linguistic stocks and linguistic areas in North America, with detailed treatment of typical languages and stocks. Prerequisites: Sociology 111 and English 185 or consent of instructor. 2:30 MWF. Mr. Swadesh.

114. Linguistic Structure. I; 3 cr. The configurative nature of linguistic structures; phonemics, morphological techniques, phonological changes, lexeme classes, inflection, internal and external syntax, lexeme-building. The course will consist of general discussions and specific illustrations from English and various other languages chosen with regard to their structural diversity. Linguistic method will be discussed with the object of gaining a critical understanding of the nature and adequacy of descriptive formulations. This course is intended for the student specializing in linguistics. Prerequisite: Sociology 111 or consent of instructor. 1:30-3:30 Tu, 1:30 W. Offered 1939-40 and in alternate years. Mr. Swadesh.

115. Inductive Phonemics. I; 1 cr. The analysis of phonetic systems solely on the basis of material recorded from oral dictation. A series of languages will be used for instruction purposes. The students will record in phonetic script and then analyze out the phonetic types represented, using phonemic procedure. May ordinarily be taken only concurrently with English 185 (Introduction to Phonetics), with which it forms a three-credit group. Not offered 1938-39. Mr. Swadesh.

142. Introduction to Physical Anthropology. I; 2-3 cr.** Physical structure and racial types of mankind. Prerequisite: Junior standing or consent of instructor. Fee: $1.00. 10 TT. Miss Gower.

143. Advanced Physical Anthropology. I, II; *cr. Training in laboratory methods with research on assigned problems. Prerequisites: Sociology 142 and consent of instructor. Miss Gower.

204. Anthropological Problems. Yr; 2 cr. Discussions of current authropological literature and methods, and work on assigned problems. Prerequisite: Graduate standing or consent of instructor. 7:15-9:15 Th. Mr. Bennett.

212. Fundamental Contrasts Between Oriental and Occidental Cultures. II; 2 cr. Prerequisite: Graduate standing or consent of instructor. 7:15-9:15 W. Miss Gower.

213. Culture Contacts and Cultural Change. I; 2 cr. A study of the effects upon the adherents of other cultures of intimate contact with modern civilization. Prerequisites: Graduate standing or consent of instructor. 7:15-9:15 W. Miss Gower.

**May be taken for two hours (omitting anthropometric work in laboratory). Anthropology majors must register for three credits.

214. Language and Culture. II; 2 cr. The interrelations of culture and language. The discussion will follow such topics as forms of thought; interplay of language and symbolic behavior; manner in which language is influenced by culture and *vice versa;* role of language in personality organization and in social control. 7:15-9:15 W. Offered 1939-40 and in alternate years. Mr. Bennett, Miss Gower, and Mr. Young.

216. Field Methods in Linguistics. II; 2 cr. The structural analysis of linguistic material recorded from oral dictation. Whenever possible the students will deal directly with a native informant, doing research under the guidance of the instructor. Prerequisite: Sociology 111 or consent of instructor. 3:30-5:30 M. Mr. Swadesh.

III. SOCIAL PATHOLOGY

141. Poverty and Dependency. I; 3 cr. Extent of poverty and pauperism; causes of poverty and dependency; historical methods of dealing with dependents; relief problems presented by the unemployed; special classes of dependents, like the aged, the insane, epileptic, dependent children; preventive agencies and methods. Prerequisites: For sociology majors, Sociology 1 and 2 or con. reg. in 1; for others, junior standing or concurrent registration in Sociology 1. Fee: $.50. 11 MWq. Mr. Gillin.

161. Criminology and Penology. II; 3 cr. The problem of crime and criminals; extent and cost of crime; the making of the criminal; the history of punishment; modern penal institutions; the machinery of justice. Prerequisites: For sociology majors, Sociology 1 and 2, or concurrent registration in Sociology 2; for others, junior standing or concurrent registration in Sociology 2. Fee: $.50. 9 TTq. Mr. Gillin.

165. The Use of Scientific Methods in the Identification of the Criminal. II; 2 cr. Lectures and demonstrations illustrating the various modern techniques used in criminal identification. Prerequisite: Sociology 161 or junior standing. 11 TT. Mr. Mathews.

168. Probation and Parole. I; 3 cr. The development of probation and parole as a means of individualizing the treatment of the prisoner. Early forms and techniques; relation to courts and correctional institutions. Comparison of the statutes governing probation and parole by the different states of the United States and between the United States and foreign countries. The function of the probation and parole officer. Kinds of offenders who should be placed on probation or released on parole. Relation of probation and parole to punishment. Selection and training of probation and parole officers. Administering and supervising organizations. Similarities and differences between probation and parole for juveniles and adults. Success and failures on probation and parole. Probation and parole related to the social configuration of a community. Qualifications of probation and parole officers. Prerequisites: Sociology 161 and senior or graduate standing. Fee: $.50. 11 TT. Mr. Gillin.

197. Personality and Social Adjustment. II; (See Group VII). Mr. Young.

235. Research in Social Pathology. II; 3 cr. Qualitative and quantitative methods of research with reference to selected problems in the field of crime and its treatment. Detailed analysis of relationships between the

case study and statistics. Prerequisites: Sociology 132 and 2 or equivalents. Fee: $1.50. 1:30-3:30 M. Mr. Gillin and Mr. McCormick.

256. DEVELOPMENT OF CORRECTIONAL POLICIES. II; 2 cr. Theories and policies relating to the criminal and his treatment; the evolution of punishment; the relation of canon law to secular criminal law; the classical theory of punishment; the Italian School; modern theories and policies. Prerequisite: Graduate standing or consent of instructor. Fee: $2.00. 3:30-5:30 Tu. Mr. Gillin.

259. DEVELOPMENT OF POOR RELIEF POLICIES. I; 2 cr. The development of poor relief theories and policies from ancient times to the present. Fee: $2.00. 3:30-5:30 Tu. Mr. Gillin.

IV. SOCIAL WORK

In addition to the courses in social work listed below, the following are desirable pre-professional courses: Sociology 25, 125, 126, 132, 138, 139, 141, 160, 161, 197, 200, 232, 235, 239, 256, 259, 265; Economics 120, 122, 123, 171; Home Economics 1a, 1b; Political Science 143.

145. INTRODUCTION TO THE FIELD OF SOCIAL WORK. I; 2 cr. An introductory survey of various fields and methods of social work; the extent of social work and its implications for related professions. Arranged not only for social work students but for those preparing for allied professions such as law, medicine, ministry, teaching, public administration. Various specialists will lecture. Field trips will be arranged for which the student should occasionally allow two or three hours a week. Prerequisite: Junior standing. 1:30 TT. Miss Clarke.

148. GROUP WORK PRACTICE. Yr; 6 cr. with 300 hours of field work at Neighborhood House, Y.W.C.A., Boy Scouts, etc.; for students who are not sociology majors, 4 cr. for 200 hours of field work or 2 cr. for 100 hours of field work. These last two provisions are designed primarily for Home Economics and Physical Education students. Students act as leaders for various groups helping to provide a recreational and educational program. Prerequisite: Graduate standing or senior standing with consent of instructor. Field practice and conference to be arranged. Miss Clarke and staff.

150. GROUP WORK THEORY. Yr; 4 cr. The importance and meaning of the group and the place of the individual in the group. Case-work methods as applied to group work. Students are requested to keep a diary of their leadership activities with one group which affords a case record for analysis; they also make a personality analysis of at least one individual. Prerequisite: Concurrent registration in Sociology 148 or consent of instructor. 2:30-4:30 Th—1st Sem. 1:30-3:30 Th—2nd Sem. Miss Clarke.

162. CHILD WELFARE. I; 2 cr. Proportion of children in the population; problems of the dependent, defective and delinquent child; methods of study and treatment utilized by the federal, state and local governments and by private agencies. Prerequisites: Senior standing and consent of instructor. 1:30-3:30 M. Miss Yerxa.

166. ADMINISTRATION AND COORDINATION OF SOCIAL AGENCIES. II; 2 cr. Forms of organization in social agencies; relations between public and private agencies, local, state-wide and national organizations; methods of financ-

ing with especial reference to community chests. Prerequisites: Senior standing, preferably some social work experience, and consent of instructor. 1:30-3:30 M. Mr. Birt.

177. Social Legislation. I; 3 cr. General readings, statutes and court decisions on such subjects as marriage, divorce, adoption, illegitimacy, poverty. The reciprocal effect of law and social work. Prerequisite: Sociology 141, senior standing, or consent of instructor. Fee $2.00. 9 MWF. Miss Clarke.

178. Theories of Community Organization. II; 2 cr. Various conceptions of neighborhood and community. Study of social forces that work in the community; the functions and methods of social agencies in the community organization. Community and agency case records are used to make the material concrete. Prerequisites: Senior standing, preferably some social work experience, and consent of instructor. 1:30-2:30 TT. Miss Clarke.

190. Medical Aspects of Social Work. II; 2 cr. The correlation of medical practice and the procedure of social work. The more common diseases, as tuberculosis, cancer, venereal diseases, children's difficulties, etc., with emphasis upon community problems. Designed for social work students. Prerequisite: Senior or graduate standing for sociology majors, or consent of instructor. 1:30 TT. Dr. Cole and staff.

247. Case-Work Practice. Yr; 6 cr. with 300 hours of field work in a Madison case-work organization; weekly staff conference to discuss problems. Students interview clients and collateral sources, evaluate the information secured, and formulate plans of treatment. Prerequisites: Graduate standing; senior standing with consent of instructor. All students are required to take Sociology 249. Field practice and conference. Mrs. Siebecker.

249.* Case-Work Theory. Yr; 4 cr. Discussion of the methods and values of case work. The study of records illustrating various problems, as illegitimacy, unemployment, domestic disharmony, juvenile delinquency, with methods of investigation and treatment. In the second semester particular attention is given to the interview and personality problems. Prerequisites: Section a: Graduate or senior standing and consent of instructor. Designed primarily for students not taking field work or expecting to go into social work. 1:30-3:30 W. Section b: Concurrent registration in Sociology 247. 1:30-3:30 Tu. Fee $1.00 first semester. Miss Clarke.

265. Public Welfare Administration. II; 2 cr. Administrative provisions for care of dependent, defective, delinquent persons. Trends toward centralization of administration for public welfare functions. Analysis of federal, state and local welfare structure, finance, personnel. Prerequisites: Graduate standing or Sociology 177 and consent of instructor. 7:00-9:00 M. Miss Clarke.

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*Those students who are admitted to Sociology 247 (Case-Work Practice) or to Sociology 148 (Group-Work Practice) are required to take Sociology 249 (Case-Work Theory) or Sociology 150 (Group-Work Theory) neither of which courses counts toward the 120 credits required for graduation nor toward the 30 credits required for a major in Sociology. This rule does not apply to stduents who do not take Sociology 247 or 148.

V. RURAL SOCIOLOGY

This is a duplicate listing of those courses offered by the Department of Rural Sociology which may be elected by majors in Sociology and other qualified students.

25. RURAL LIFE. I; 3 cr. The study of rural society; its organization and relations, such as families, neighborhoods, villages, interest groups, town-country and rural-urban relations; its people, such as their changing characteristics and mobility; its social institutions, such as those for education, religion, standards of living, sociability, recreation, health, social welfare, local government. Prerequisite: Sophomore standing. 10 MWF. Mr. Kolb.

125. RURAL SOCIOLOGY. I; 2 cr. An advanced course in a systematic study of rural society, giving emphasis to the points of view of leading authorities and to the important findings of research including recent studies in rural social trends. Teaching and extension methods will be given attention. Prerequisite: Sociology 25 or equivalent or senior standing. 2:30-4:30 W. Mr. Barton.

126. RURAL STANDARDS OF LIVING. II; 2 cr. Development of standards of living in rural communities. A study of all elements composing the standard of living such as food, housing, clothing, transportation, education, recreation in relation to various material and non-material conditioning factors. Special reference is made to the growth of a consumer consciousness in rural areas, and the various agencies, governmental and cooperative, which give it expression. Prerequisite: Junior standing or consent of instructor. 7:15-9:15 Tu. Mr. Barton.

192. RURAL-REGIONAL PLANNING. II; 3 cr. Discussion of the technique and principles of rural-regional planning and zoning, the assembling of basic data underlying a plan for a selected county or region, followed by student reports each covering a segment of the complete project. Open to students majoring in the departments represented by the staff or the consent of the instructors. Mr. Aust, Mr. Kolb, Mr. Wehrwein.

200. RESEARCH. Yr; *cr. Rural social organization, Mr. Kolb; Rural standards of living, Mr. Barton; Community organization, leadership and extension methods, Mr. Wileden.

225. SEMINARY IN RURAL SOCIAL RESEARCH. Yr; 2 cr. Emphasis upon the scope and method of research in this field. Case studies of current research projects with particular attention to those concerned with various phases of community organization, standards of living, rural population, farmers' organization, social institutions, rural government, social psychology and social trends. Prerequisites: Graduate standing, Sociology 25 and consent of instructor. 7:30-9:30 Tu. Mr. Kolb.

VI. STATISTICS

132. INTRODUCTORY SOCIAL STATISTICS. I, II; 3 cr. Introduction to the logic and use of statistics as a method of analyzing sociological problems. Prerequisite: Major in sociology or consent of instructor. Fee $1.50. Lectures 8 MW: q. 8 F; lab. (a) 1:30-3:30 F; (b) 3:30-5:30 F. Mr. McCormick.

232. Advanced Social Statistics. Yr; 3 cr. Theory of errors, with special attention to methods of determining the representativeness and reliability of samples involving nonquantitative categories; curve fitting; time series; special sociological applications of partial correlation. Material drawn from problems of practical concern to research workers in sociology and related fields. Prerequisites: Graduate standing and Sociology 132 or equivalent. Fee $2.00. Lecture 1:30-3:30 Tu; lab. 1:30-4:30 Th. Mr. McCormick.

233. Research in Social Psychology. I; (See Group VII). Offered 1938-39 and in alternate years. Mr. McCormick and Mr. Young.

234. Statistics in Population Research. II; 2 cr. Critical examination of chief sources of data and consideration of typical fallacies of interpretation. Refinement of birth rates and death rates. Prediction of population growth. Techniques for studying selected topics, such as differential fertility; population and natural resources; population phenomena in relation to business cycles. Prerequisites: Sociology 132 and preferably 163. Fee $1.50. Not offered 1938-39. Mr. McCormick.

235. Research in Social Pathology. II; (See Group III). Offered 1938-39 and in alternate years. Mr. McCormick and Mr. Gillin.

236. Statistical Social Research. I; 3 cr. Definition of problems; review of existing information. Preparation of questionnaires, instructions, and tables. Preliminary trials, estimates of errors, and revision. Organization of field work; editing returns. Hand tallies; machine methods. Analysis and report writing. Prerequisites: Graduate standing, Sociology 132 and consent of instructor. Fee $2.00. Lecture 9 F; conf. 10 F; lab. 1:30-3:30 F. Offered 1939-40. Mr. McCormick.

VII SOCIAL PSYCHOLOGY

139. Social Psychology. I; 3 cr. Place of emotions, habits, and of fantasy and objective thinking in social behavior. Prerequisites: Psychology 1 and junior standing, or junior major in sociology. 10 MWq. Mr. Young and staff.

197. Personality and Social Adjustment. II; 3 cr. Personality treated from the angle of group participation, especially in the family, play group, gang, neighborhood, school, church, and various community groups. Literature on problem children, juvenile delinquency, adolescent and adult maladjustment examined critically. Prerequisites: Psychology 1 or Sociology 139, and junior standing. Fee $1.50. 10 MWq. Mr. Young and staff.

213. Culture Contacts and Cultural Change. I; (See Group II). Miss Gower.

214. Language and Culture. II; (See Group II). Mr. Bennett, Miss Gower, and Mr. Young.

233. Research in Social Psychology. I; 3 cr. Qualitative and quantitative methods of research with reference to selected problems in the field of social psychology. Detailed analysis of relationships between the case study and statistics in studying personality and social attitudes. Prerequisites: Sociology 132 and either 139 or 197, or equivalents. Fee $2.00. Hours

to be arranged. Offered 1938-39 and in alternate years. Mr. Young and Mr. McCormick.

237. Psychology of Public Opinion and Leadership. I; 2 cr. A social psychological analysis of such important matters as propaganda, of lobby and pressure groups, and of censorship as these influence public opinion. Also the role of the leader in reference to public opinion and other forms of social control will be discussed. Prerequisite: Sociology 139 or its equivalent or consent of instructor. Fee $1.00. 2:30-4:30 M. Offered 1938-39 and in alternate years. Mr. Young.

239. Advanced Social Psychology. I; 2 cr. The theoretical and systematic foundations in social psychology. 2:30-4:30 M. Offered 1939-40 and in alternate years. Mr. Young.

297. Personality Problems. II; 2 cr. Selected topics which relate the development of personality to social-cultural environment, especially in relation to problems of the family, school, delinquency, and adult maladjustment. Prerequisites: Graduate standing and consent of instructor. Fee $1.00. 7:15-9:15 M. Mr. Young.

Graduate students majoring in Group VII should consult their major professor regarding the following courses: Psychology 106: Abnormal Psychology (Cason); Psychology 108: Human Emotions and Motivation (Harlow); Education 119: Child Development (Jensen); Education 120: Child Development: The Psychology of Adolescence (Jensen); Neuropsychiatry 112: Problems in Neuropsychiatry (Lorenz and staff); Zoology 122: Endocrinology (Meyer).

SPANISH AND PORTUGUESE

Joaquín Ortega, M.A., *Professor of Spanish, Chairman*
Hyman Chonon Berkowitz, Ph.D., *Professor of Spanish*
Américo Castro, Ph.D., Litt.D., *Professor of Spanish and Comparative Literature*
Charles Dean Cool, Ph.D., *Professor of Spanish*
James Homer Herriott, Ph.D., *Assistant Professor of Spanish*
Lloyd August Kasten, Ph.D., *Assistant Professor of Spanish*
Albert Eddy Lyon, Ph.D., *Assistant Professor of Spanish*
Eduardo Neale-Silva, Ph.D., *Assistant Professor of Spanish*

INSTRUCTORS

Victor R. B. Oelschläger, Ph.D.
Mack Singleton, Ph.D. (Spanish and Portuguese)

Nature of the Courses. The elementary courses have been planned to meet the needs of students who take up the language for the first time at the University of Wisconsin, as well as of those who have begun the study in high school, or who may transfer from other higher institutions. For purposes of meeting the prerequisites of the courses announced, one unit (year) of high-school work is assumed to be the equivalent of 4 credits, or one semester of college work. The regular first-year courses are 1a and 1b. The regular second-year courses are 10a and 10b, in which emphasis is placed on the acquisition of a reading knowledge of the language. The second-year practice courses are 15 and 16, usually taught by native Spanish instructors and intended to supplement the training offered in 10a and 10b. The regular third-year course is 21,

comprising reading of representative masterpieces with a background of literary history and designed to be an introduction to the study of Spanish literature. This course is a prerequisite to all the other courses in Spanish literature. The third-year practice courses are 25 and 27, which are usually taught by native Spanish instructors and are intended to supplement the training offered in 47 and 21. Course 47 is a special third-year course intended to be introductory to the study of Spanish and Spanish-American civilization. Spanish 55 (Comp. Lit. 55) is a course offering an approach to Spanish and Portuguese literature to students without the knowledge of the languages. Courses in elementary Portuguese are offered, and more advanced work will be established when the demand arises. Portuguese is important in comparative study of the Romance languages, and of practical value as the language of Brazil. The advanced practice courses are 116, 117, and 190, for which the prerequisite is three years of college Spanish; 21 is not a necessary prerequisite; 116 offers training in general advanced composition and conversation, and 117 emphasizes the use of the language in commerce and industry.

The advanced courses in literature and civilization have as a prerequisite 21, or equivalent; several are given in Spanish. Those under 200 are open to undergraduates. A careful rotation is established so that students specializing in literature may have adequate instruction in all genres and epochs. The philological courses are intended for graduate students, but 141, an introductory course, is open to undergraduates. In special cases, undergraduates may be admitted to advanced philological work with the consent of Professor Kasten.

New students are assigned to classes on the basis of their ratings in a placement test, as described in section 11, page 57. The foreign language requirements for the B.A. degree are set forth in section e, page 67.

MAJOR. 32 credits, of which at least 2 must be in composition courses under 100, 6 in Spanish 21, and 9 in courses of the 100-group. In the 100-group courses a minimum of 2 credits must be in language (116, 117, 141, 190) and a minimum of 4 must be in literature. Well qualified students may apply to the Chairman of the Department for permission to write a thesis.

By faculty requirement students choosing a foreign-language major must present at least eight credits in a second language taken either in high school or college.

All who intend to specialize in Spanish are advised to elect related courses in classical and modern languages and literatures, comparative literature, history, philosophy, and art history and criticism. Courses especially recommended are introduction to phonetics (English 185), the nature and function of language (Sociology 111), linguistic structure (Sociology 113) and the courses included in the field of Hispanic Studies.

TEACHING MAJOR AND MINOR. See School of Education.

HISPANIC STUDIES AS A FIELD OF CONCENTRATION. Students interested in this major field should consult page 60.

FOREIGN NEWS SERVICE. This branch of journalism, which emphasizes the Hispanic field, is described in the special bulletin of the School of Journalism.

SEMINARY OF MEDIEVAL SPANISH STUDIES. A well-equipped seminary for independent research in this field, founded by the late Professor Solalinde, is now under the direction of Professor Kasten, with Professor Castro acting in an advisory capacity. It has separate quarters at 1212 West Johnson Street.

REVIEW CONFERENCE. The department has organized a monthly review conference at which members of the faculty and graduate students present and discuss reviews of the late important books in the Hispanic field.

LECTURES ON HISPANIC LIFE AND CIVILIZATION. The department presents every year a series of eight open lectures on phases of Spanish and Spanish-American life and civilization. A cycle is organized comprising four years, with different topics, so that the students may receive the greatest benefit from this supplementary instruction during their entire undergraduate course. To give the lectures wide range of content and professional competence the lecturers are chosen from different departments of the University, and guest speakers of reputation are invited from other institutions of learning.

SPANISH PERIODICAL. To encourage original work in the language the Department edits every semester a Spanish periodical, "La Alhambra", which is written entirely by students.

SPANISH CLUB. The Club Cervantes meets once a month during the year and presents interesting programs. Each semester and summer session a Spanish play is staged, thus affording an opportunity to the student for participating in Spanish dramatics.

ANTONIO G. SOLALINDE SCHOLARSHIP. Through the efforts of Psi chapter of Sigma Delta Pi (national Spanish honor society), a scholarship in memory of the late Professor Solalinde has been established. It carries a compensation of $50 per semester, to be granted to a student resident of Wisconsin on the basis of scholastic merit and financial need. For further information, apply to the Chairman of the Department.

SPANISH

1a. FIRST-SEMESTER SPANISH. I, II; 4 cr. For students who have had no Spanish. 25 sections I; 5 sections II. Mr. Berkowitz and staff.

1b. SECOND-SEMESTER SPANISH. I, II; 4 cr. Prerequisite: Spanish 1a or one year of high-school Spanish. 4 sections I; 19 sections II. Mr. Berkowitz and staff.

10a. THIRD-SEMESTER SPANISH. I, II; 3 cr. Prerequisite: Spanish 1b or two years of high-school Spanish. 10 sections I; 3 sections II. Mr. Berkowitz and staff.

10b. FOURTH-SEMESTER SPANISH. I, II; 3 cr. Prerequisite: Spanish 10a or three years of high-school Spanish. 2 sections I; 8 sections II. Mr. Berkowitz and staff.

15. ELEMENTARY CONVERSATION. Yr; 1 cr. Prerequisite: Spanish 1b or equivalent. May be taken only with Spanish 10a or 10b. 7 sections. Mr. Lyon and staff.

16. ELEMENTARY COMPOSITION, CONVERSATION, AND GRAMMAR REVIEW. Yr; 2 cr. Prerequisite: Spanish 1b or equivalent. Not open to students who have had 10b. 3 sections. Mr. Lyon and staff.

25. INTERMEDIATE COMPOSITION AND CONVERSATION. Yr; 2 cr. Prerequisite: Spanish 10b, and 1 semester of 16, or equivalent. Not open to students with three years of college Spanish. The regular third-year Spanish

course, recommended to all students, is Spanish 21. For training in conversation and composition, Letters and Science students with two years of college Spanish should enter Spanish 25, and with three years of college Spanish, Spanish 116 or 117. 2 sections. Mr. Lyon, Sr. Neale-Silva, Mr. Thompson.

27. Commercial Practice in Hispanic Countries. I; 2 cr. 1:30 MW. Mr. Cool.

ADVANCED PRACTICE COURSES

(Prerequisite: Three years of college Spanish)

116. Composition, Conversation, and Grammar Review. I; 2 cr. 11 TT. Sr. Ortega.

117. Commercial and Industrial Language Practice in Hispanic Countries. II; 2 cr. 11 TT. Sr. Ortega.

190. Spanish Phonetics. I; 2 cr. Theory of Spanish sounds with practical training in pronunciation. 1:30 TT. Mr. Singleton.

. Teaching of Spanish. See School of Education.

PHILOLOGY

141. Spanish Historical Grammar. Yr; 2 cr. An introductory course to Spanish philology: phonology, morphology, and syntax. Prerequisite: Three years of college Spanish. Offered 1939-40 and in alternate years. Mr. Herriott.

201. Methods of Investigation and Bibliographical Information. Yr; 2 cr. Required of candidates for the doctorate who have not had this training elsewhere. Conducted in Spanish. Offered 1939-40 and in alternate years. Sr. Castro, Mr. Kasten.

210. Philological Seminary: Old Spanish. Yr; 2 cr. Offered 1938-39 and in alternate years. 3:30 F. Mr. Kasten.

258. Historical Spanish Syntax and Lexicography. I; 2 cr. Chronological study of representative texts. Conducted in Spanish. Offered 1938-39 and in alternate years. 3:30 TT. Sr. Castro.

Romance Philology. Sr. Castro. See Comparative Philology 273. Does not carry credit in Spanish.

CIVILIZATION

47. Spain and Spanish America of Today. Yr; 2 cr. A study of current periodicals, with supplementary readings and lectures to establish a background of the present social, economic, and political conditions in Spain and Spanish America. Illustrated with lantern slides. Prerequisite: Spanish 10b. 10 TT. I, Spain, Sr. Ortega; II, Spanish America, Sr. Neale-Silva.

150. Spanish Civilization. II; 2 cr. Conducted in Spanish; illustrated with lantern slides. Prerequisite: Spanish 21. Offered 1939-40 and in alternate years. Sr. Castro.

151. Spanish-American Civilization. II; 2 cr. Conducted in Spanish; illustrated with lantern slides. Prerequisite: Spanish 21. Offered 1938-39 and in alternate years. 1:30 TT. Sr. Neale-Silva.

Reporting Hispanic Affairs. I, Spain, Mr. Cool; II, Spanish America. Sr. Neale-Silva. See Journalism 121. Does not carry credit in Spanish.

LITERATURE

(Spanish 21, or its equivalent in the case of students coming from other institutions, is prerequisite to all 100-courses in Spanish literature.)

21. Elementary Survey. Yr; 3 cr. Introduction to the study of Spanish literature. Representative masterpieces in class, assigned readings, discussion of the literary aspects of the works read, and literary history. Prerequisite: Spanish 10b or equivalent. 4 sections. Mr. Cool (Chairman), Mr. Herriott, Mr. Lyon, Mr. Oelschläger.

102. Spanish Contemporary Literature. Yr; 3 cr. A study of representative authors (novel, drama, poetry and essay) of the "generation of '98"; and also of the new literature since the war. Characterization of the currents of modern Spanish thought. Offered 1939-40 and in alternate years. Sr. Ortega.

104. Cervantes and Other Spanish Prose Writers of el Siglo de Oro. Yr; 2 cr. An intensive study of Cervantes' works and their relation to the literature of his times. Offered 1939-40 and in alternate years. Mr. Cool.

105. Modern Spanish Drama. Yr; 3 cr. The development of eighteenth- and nineteenth-century drama; its chief representatives; its social and historical background. Offered 1939-40 and in alternate years. Mr. Lyon.

107. Survey of Spanish Drama from its Origins to the End of the Golden Age. Yr; 3 cr. The development, from earliest times to the close of the *Siglo de Oro,* of religious drama, farce, and the national *comedia,* with special attention to great representatives of the latter and their influence on European literature. Offered 1938-39 and in alternate years. 10 MWF. Mr. Lyon.

122. Modern Spanish Novelists and Essayists. Yr; 3 cr. An intensive study of the significant periods and figures in the evolution of the Spanish novel during the XIXth century, together with an evaluation of Spanish national life as interpreted by the leading essayists of the XVIIIth and XIXth centuries. Offered 1938-39 and in alternate years. 9 MWF. Mr. Berkowitz.

126. Spanish-American Literature. Yr; 2 cr. Survey of Spanish-American literature from Colonial times to the present with special emphasis on the *modernista* poets and the main contemporary prose writers. Offered 1939-40 and in alternate years. Sr. Neale-Silva.

131. General Survey of Spanish Literature. Yr; 3 cr. Conducted in Spanish. Offered 1938-39 and in alternate years. 2:30 MWF. Sr. Castro.

148. Spanish Renaissance. Yr; 2 cr. A study of the most significant authors and their works from the Celestina to Cervantes. Offered 1938-39 and in alternate years. 10 TT. Mr. Herriott.

163. FRENCH-SPANISH LITERARY RELATIONSHIPS. Yr; 2 cr. Literary contacts between France and Spain from the XIIIth to the XIXth centuries. Conducted in French. Offered 1938-39 and in alternate years. 2:30 TT. Sr. Castro. (Also listed in the Department of French and Italian.)

200. INDIVIDUAL RESEARCH. Yr; credit commensurate with work accomplished. Well-qualified graduate students may undertake individual research in some definite field. Staff.

SPANISH AND PORTUGUESE MASTERPIECES IN TRANSLATION. Mr. Berkowitz. See Comparative Literature 55. Does not carry credit in Spanish.

CERVANTES. Sr. Castro. See Comparative Literature 143. Does not carry credit in Spanish.

BAROQUE LITERATURE IN EUROPE. Sr. Castro. See Comparative Literature 193. Does not carry credit in Spanish.

SEMINARIES

At least one seminary is offered each year in the Modern Period or the Golden Age. The seminary in Medieval Literature is offered alternating with Spanish 210, Philological Seminary in Old Spanish.

204. CERVANTES. Yr; 2 cr. Sr. Ortega.

205. EIGHTEENTH CENTURY. Yr; 2 cr. Mr. Lyon.

209. HISTORY OF LITERARY CRITICISM IN SPAIN (The generation of 1868). Yr; 2 cr. Mr. Berkowitz.

230. TIRSO DE MOLINA. Yr; 2 cr. Sr. Ortega.

231. GALDOS. Yr; 2 cr. Mr. Berkowitz.

240. QUEVEDO. Yr; 2 cr. Mr. Cool.

263. MODERN SPANISH THOUGHT. Yr; 2 cr. Offered 1938-39. 3:30 W. Sr. Ortega.

264. SPANISH DIDACTIC LITERATURE. Yr; 2 cr. Mr. Kasten.

266. FIFTEENTH CENTURY. Yr; 2 cr. Sr. Castro.

282. MEDIEVAL LITERATURE. Yr; 2 cr. Offered 1939-40 and in alternate years. Mr. Kasten.

PORTUGUESE

1a-1b. ELEMENTARY PORTUGUESE. Yr; 4 cr. For beginners. 8 MTWT. Mr. Singleton.

10a. THIRD-SEMESTER PORTUGUESE. I; 3 cr. Prerequisite: Portuguese 1b. 11 MWF. Mr. Singleton.

10b. FOURTH-SEMESTER PORTUGUESE. II; 3 cr. Prerequisite: Portuguese 10a. 11 MWF. Mr. Singleton.

15. ELEMENTARY CONVERSATION. Yr; 1 cr. Prerequisite: Portuguese 1b. May be taken only with Portuguese 10a or 10b. Hour to be arranged. Mr. Singleton.

SPEECH

ANDREW THOMAS WEAVER, Ph.D., *Professor of Speech, Chairman*
HENRY LEE EWBANK, Ph.D., *Professor of Speech*
ROBERT WEST, Ph.D., *Professor of Speech Pathology*
GLADYS LOUISE BORCHERS, Ph.D., *Associate Professor of Speech*
GERTRUDE ELIZABETH JOHNSON, B.A., *Associate Professor of Speech*
JAMES RUSSELL LANE, B.S., *Assistant Professor of Speech* (on leave I)
FREDRICK ALGA BUERKI, M.A., *Acting Instructor in Speech*
HARRIETT ELIZABETH GRIM, Ph.D., *Instructor in Speech*

The courses in this department have two main functions: 1. The education of students in the fundamentals of speech (private and public), covering both scientific and artistic aspects—organized knowledge and personal proficiency; 2. The preparation of especially qualified students to become teachers in one or more of the following sections of this field: (a) argumentation and debate, and the composition and delivery of public speeches; (b) reading, acting, and dramatic production; (c) disorders of speech and corrective methods; (d) the psychology and pedagogy of reading and speaking; (e) voice science and phonetics. The courses are so arranged as to make possible systematic and progressive study during the sophomore, junior, and senior years. Courses in speech are not open to freshmen.

MAJOR. A minimum of thirty credits including courses 1, 2, 3 or 4, 6, 16 or 25, and 141, to be taken in sequence so far as posible. Twelve credits must be in courses numbered above 100. Upper-group students who have done distinguished work in speech will be permitted to write theses.

THE UNIVERSITY THEATRE. This well-equipped little theatre provides unusual facilities for training students in acting and in producing plays. A number of plays are staged each semester.

SPEECH CLINIC. The clinic, which is free to all students, is open for fifteen to eighteen hours per week throughout the academic year; it offers expert guidance and assistance in the diagnosis and treatment of all kinds of voice and speech disorders. Mr. West and staff.

FORENSIC ACTIVITIES. The department sponsors and supervises an extensive program of intra-mural and intercollegiate debates and other speech contests which provide special training for students with unusual talent.

PUBLIC READING. Students especially proficient in reading are given the opportunity to appear on a regular program of public readings.

1. FUNDAMENTALS OF SPEECH. I, II; 3, 2, or 1 credits. For one credit, lecture course designed to give the student an understanding of the speech function and the principles of effective speech.
   For two credits, recitation devoted to practice, analysis of individual performance in speech, and suggestions for improvement.
   For three credits, recitation and lecture as described above.
   Students who expect to take further work in the department should elect Speech 1 in their sophomore year if possible. Not more than three credits may be earned in any combination of Speech 1 and Speech 7 and such combination must include the lecture hour of Speech 1. Open to all

students except freshmen. Lab. fee $1.00. Lect. 11 Th; eight recitation sections. Mr. Ewbank and staff.

2. FUNDAMENTALS OF SPEECH. I, II; 3 cr. Continuation of Speech 1, which is prerequisite. 11 MWF. Miss Borchers, Mr. Weaver.

3. ARGUMENTATION AND DEBATE. I; 3 cr. A study of the theory of argument with the practice in preparation and delivery of various types of argumentative speeches. Prerequisite: 2 credits in an elementary course. 9 MWF. Mr. Ewbank and staff.

4. ELEMENTS OF PERSUASION. II; 3 cr. An elementary consideration of the psychology of persuasion with practice in the preparation and delivery of various types of persuasive speeches. Prerequisite: 2 credits in an elementary course. 9 MWF. Mr. Ewbank and staff.

5. VOICE TRAINING. I; 2 cr. For physical education women. Lab. fee $1.00. Two practice sections. Miss Grim.

6. VOICE TRAINING. I; 2 cr. Specific training and practice designed to improve vocal conditions for all speech purposes. Exercises for flexibility, range, relief from tension, articulation and enunciation. Text and outside readings. Prerequisite: For majors, Speech 1* which may be taken concurrently; for others, consent of instructor. Not open to senior majors. Lab. fee $1.00. Lect. 3:30 W; four practice sections. Miss Grim.

7. PUBLIC SPEAKING. I, II; 2 cr. For those who wish to develop fundamental skill in direct public address. Special emphasis upon purpose, audience, occasion, and types of speeches. Students taking or having taken Speech 7 may elect the lecture in Speech 1. Not more than three credits may be earned in any combination of Speech 1 and Speech 7 and such combination must include the lecture hour of Speech 1. Eight sections: 8 MW; 8, 9, 10, 11, 1:30 TT. Mr. Lane and staff.

8a. EXTEMPORE SPEAKING. I, II; 2 cr. Open only to freshman physical education men and freshman electrical engineers, of whom it is required. Four sections: 10, 11, 1:30 MW; 11 TT. Mr. Totten.

8b. EXTEMPORE SPEAKING. II; 2 cr. Prerequisite: Speech 8a. Required of freshman physical education men. Two sections: 11, 1:30 MW. Mr. Totten.

16. ELEMENTS OF EXPRESSIVE ACTION. I, II; 2 cr. Prerequisites: For majors, Speech 1* and 6 or concurrent registration; for others, sophomore standing and consent of instructor. Two sections: 10 and 11 MW. Miss Johnson.

18. ORAL INTERPRETATION OF LITERATURE. II; 2 cr. Prerequisites: For majors, Speech 6; for others, junior standing and consent of instructor. Lect. 3:30 W; two class periods. Miss Johnson.

19a. ELEMENTARY DRAMATIC PRODUCTION. I; 2 cr. Fundamentals of acting. Prerequisites: For majors, Speech 16 or concurrent registration; for others, junior standing and consent of instructor. Lab. fee $1.50. 2:30 TT. Mr. Buerki.

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*Wherever listed as a prerequisite, Speech 1 signifies 1 credit in the lecture hour of Speech 1, plus two practice hours in either Speech 1 or 7.

19b. ELEMENTARY DRAMATIC PRODUCTION. II; 2 cr. History of the theatre. Prerequisites: For majors, Speech 16 or concurrent registration; for others, junior standing and consent of instructor. Lab. fee $1.50. 9 TT. Mr. Lane.

20. PLAY WRITING. II; 2 cr. Prerequisite: Consent of instructor. Lab. fee $1.50. 10 TT. Mr. Lane.

22. DRAMATIC READING AND PLATFORM ART. Yr; 2 cr. Prerequisites: Speech 16 an 18; the former may be taken concurrently. 10 and 11 TT. Miss Johnson.

24. THE REHABILITATION OF SPEECH. I; 2 cr. Open only to majors in physical therapy. 11 TT. Mr. West.

25. CORRECTION OF SPEECH DISORDERS. I; 3 cr. Prerequisite: Speech 1 and junior standing. 1:30 MWF. Mr. West.

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

105. SPEECH COMPOSITION. I; 3 cr. Prerequisite. For majors, Speech 2, 3, or 4; for others, consent of instructor. 10 MWF. Mr. Ewbank.

110. RADIO SPEAKING. II; 2 cr. Prerequisites: For majors, Speech 6 and junior standing; for others, junior standing and consent of instructor. Lab. fee $2.00. Three sections 7-9 p.m. M; 9 TT; 1:30 TT. Mr. Ewbank and staff.

119. THEATRE DIRECTION. Yr; 2 cr. Prerequisites: For majors, Speech 19a and 19b; for others, senior standing and consent of instructor. Lab. fee $1.50. Lect. 1:30 MW; lab. 1:30 F. Mr. Lane and staff.

121. VOICE SCIENCE. I; 3 cr. Prerequisites: For majors, Speech 2 and junior standing; for others consent of instructor. 1:30-3:30 Tu; 1:30 Th. Mr. Weaver.

123. INTERPRETATION OF CLASSIC LITERATURE. I; 2 cr. Prerequisites: For majors, Speech 22 and consent of instructor; for others, senior standing and consent of instructor. 2:30-4:30 M. Miss Johnson.

125. SPEECH PATHOLOGY. I; 3 cr. Prerequisites: For majors, Speech 2 and 25; for others, Speech 25 or consent of instructor. 11MWF. Mr. West.

126. ADVANCED CORRECTION OF SPEECH DISORDERS. II; 3 cr. Prerequisites: For majors, Speech 2 and 25; for others, Speech 25 or consent of instructor. 11 MWF. Mr. West.

135. ADVANCED ARGUMENTATION AND DEBATE. II; 3 cr. Prerequisite: Speech 3 or 4 or consent of instructor. 8 MWF. Mr. Ewbank.

140. STAGE DESIGN (Art Education 140). Yr; 2 cr. I. Principles of design in relation to scenic designing. Individual and group presentations on model stage. II. Application of these principles; scenic construction and lighting in Bascom Theatre. Lab. fee $1.50. Prerequisite: Speech 19a and 19b or graduate standing in speech. 11 TT. Mr. Varnum, and Mr. Buerki.

141. PSYCHOLOGY OF SPEECH. II; 3 cr. Prerequisites: For majors, junior standing and Speech 2; for others consent of instructor. 1:30-3:30 Tu; 1:30 Th. Mr. Weaver.

185. Introduction to Phonetics. (English 185.) I, II; 3 cr. Prerequisites: For majors, Speech 2 or 25 or consent of instructor; for others, consent of instructor. 10 MWF. I, Mr. Hanley; II, Mr. West.

186. Advanced Phonetics. (See English 186.)

200. Research. Yr; 1-4 cr. Mr. Weaver and staff.

205. Seminary, Rhetoric and Oratory. I; 2 cr. 3:30-5:30 W. Miss Borchers.

219. Seminary, Dramatic Production. I; 2 cr. 3:30-5:30 F. Miss Johnson.

220. Seminary, Theory of Oral Interpretation. II; 2 cr. 2:30-4:30 Th. Miss Johnson.

227. Seminary, Speech Pathology. Yr; 2 cr. 7:00-9:00 Tu. Mr. West.

255. Seminary, Persuasion. II; 2 cr. 3:30-5:30 W. Mr. Ewbank.

TEACHERS' COURSES

Teaching of Speech in High School. See School of Education.

Teaching of Speech in College. See School of Education.

ZOOLOGY

Michael Frederic Guyer, Ph.D., LL.D., *Professor of Zoology, Chairman*
Chancey Juday, M.A., LL.D., *Professor of Limnology*
George Wagner, M.A., *Professor of Zoology*
Lowell Evan Noland, Ph.D., *Professor of Zoology*
Chester Albern Herrick, Sc.D., *Associate Professor of Zoology and Veterinary Science*
Roland Kenneth Meyer, Ph.D., *Assistant Professor of Zoology*
Marvin Andrew Spielman, Ph.D., *Assistant Professor of Chemistry*
Pearl Elizabeth Claus, Ph.D., *Research Associate in Zoology*
William Hartford McShan, Ph.D., *Research Associate in Zoology*
Nellie Mae Bilstad, Ph.D., *Instructor in Zoology*
Arthur Davis Hasler, Ph.D., *Instructor in Zoology*
Harold Reclus Wolfe, Ph.D., *Instructor in Zoology*

Major. A minimum of 30 credits, including the following courses: Zoology 1, 104, 105, 106 or 107, 111 or 113, and one course from each of the two following groups: (A) Zoology 102, 119 or 120; (B) 118, 122 or 126. Students planning to enter zoological teaching or research are advised to take Botany 1, Zoology 102 and Zoology 118 or 126. Students planning to enter medicine, nursing or hospital technician work after graduation may profitably take Zoology 119 and 122. Botany 1 may be credited toward the major in zoology; however, of the 30 credits required in the major not more than 10 may be taken in elementary courses, such as Botany 1, Zoology 1, 2 and 17. Students majoring in this department and having a grade-point average of 2.0 or above in zoology at the end of their junior year are invited to confer with their advisers regarding the possibility of undertaking research work toward a thesis (Zoology 100) during their senior year. For the advanced courses training in chemistry and also the ability to read French and German are desirable. Medical students will find courses 104-106, 111-113, 119, 120 and 122 of special interest. Agricultural students will find courses 104, 106, 110-112, 118-120 of special interest.

1. Animal Biology. I, II; 5 cr. Life and living things, adaptations of animals, physiology of organ systems, embryology, heredity, and evolution. Laboratory includes anatomy, physiology, embryology, and histology of the frog, and comparative studies on Amoeba and Hydra. This course together with Botany 1 or Zoology 2 satisfies the science requirement for the B.A. degree. Lab fee $8.00. Lecture I, 9 MW, (Mr. Wagner); II, 2:30 MW, (Mr. Guyer); 4 hrs. lab.; 2 hrs. quiz. Mr. Guyer, Mr. Wagner and staff.

2. General Zoology. II; 5 cr. A survey of the main types of animals, their classification, structure, life history, and interest for man. Laboratory work on representative animals. Bird trips. Prerequisite: Zoology 1. Lab. fee $8.00. Lecture 9 MW; 4 hrs. lab.; 2 hrs. quiz. Mr. Hasler and staff.

17. Survey of Zoology: How Animals Live. I; 3 cr. A brief introductory course in biological principles as illustrated in animals. May be applied toward fulfillment of the science option by students in the B.A. course. Open as a free elective to all other students, excepting those who have taken Zoology 1. Lab. fee $5.00. Lecture 8 TT; one three-hour laboratory and quiz period. Mr. Wagner and staff.

100. Senior Thesis. Yr; 2 cr. Original, individual work for zoology majors of upper-group status. Requires permission of adviser in zoology. Staff.

102. Invertebrate Zoology. I; 5 cr. Structure, life history, classification, and adaptations of invertebrate animals. Prerequisite: Zoology 1. Lab. fee $10.00. 1:30 MWF; 6 hrs. lab. Mr. Noland and staff.

103. The Vertebrates. II; 2 cr. Lectures on classification, life history, and adaptations of vertebrate animals. Prerequisite: Zoology 1. 8 TT. Mr. Wagner.

104. Comparative Anatomy of Vertebrates. II; 5 cr. Lectures comparing structure and development of organ systems in the different vertebrate groups. Laboratory dissection of shark, mud-puppy, and cat, and comparative studies on other vertebrates. Prerequisite: Zoology 1 or 17. Lab. fee $10.00. Lecture 1:30 MWF; 6 hrs. lab. Mr. Wagner and staff.

105. Vertebrate Embryology. I; 5 cr. The early embryological development of vertebrates, including fertilization, cleavage, and origin of organ systems. Prerequisite: Zoology 1 or 17. Lab. fee $7.00. Lecture 11 MWF; 4 hrs. lab.; 1 hr. quiz. Mr. Meyer and staff.

106. Heredity and Eugenics. I; 2 cr. The laws of heredity, their application to man, and the importance of the biological principles underlying race-betterment. Not open to freshmen. Lecture 2:30 TT; quiz. Mr. Guyer.

107. Organic Evolution. II; 2 cr. A discussion of organic evolution and how it has taken place. Not open to freshmen. 10 TT. Mr. Wagner.

108. Protozoology. II; 3 cr. Structure, physiology, life history, and adaptations of protozoa, especially the non-parasitic forms. Prerequisite: Zoology 102 or consent of instructor. Lab. fee $5.00. 1:30-4:30 MW. Mr. Noland.

109. Advanced Vertebrate Embryology. II; 3 cr. The differentiation and development of tissues and organs, considered from the functional and

comparative standpoints. Each student undertakes a special problem in the differentiation of an organ or organ system. Prerequisite: Zoology 104, 105 and 111. Lab. fee $6.00. 1:30-4:30 MW. Mr. Meyer.

110. Entomology: Anatomy and Embryology. I; 3 cr. Anatomy, histology and development of insects. Prerequisite: An elementary course in entomology. Lab. fee $4.00. 9-12 TT. Mr. Noland.

111. Micro-Technique. I; 3 cr. Training in the preparation of histological material, including practice in fixing, staining, mounting, maceration, imbedding and sectioning. Prerequisite: Zoology 1. Lab. fee $12.00. 8-11 MW. Miss Bilstad.

112. Insects and Man. I; 2 cr. Lectures on harmful and beneficial insects in their relation to man and his domesticated animals, with special reference to insects of medical importance. 8 MW. Mr. Herrick.

113. Comparative Animal Histology. II; 4 cr. A comparative study of the tissues of vertebrates and invertebrate animals. Prerequisite: Zoology 104 or 105. Lab. fee $6.00. 9-12 MWF. Miss Bilstad.

118. General Entomology. II; 3 cr. Discussions on the life problems and adaptations of insects. Collecting and classifying of insects. Lab. fee $5.00. Lecture 11 TT. 4 hrs. lab. Mr. Noland.

119. Animal Parasites of Man. II; 3 cr. Morphology, life history, diagnosis and control of the important parasites affecting man. For medical students and others interested in public health problems. Prerequisite: Zoology 1 or 17. Lab. fee $8.00. Lecture 9 TT; 4 hrs. lab. Mr. Herrick and staff.

120. Parasites of Domestic Animals. I; 3 cr. Structure, life history, diagnosis and prevention of parasites of the domesticated vertebrate animals. Prerequisite: Zoology 1, 17 or Vet. Sci. 1. Lab. fee $5.00. Lecture 9 TT; 4 hrs. lab. Mr. Herrick.

122. Endocrinology. I; 3 cr. The general physiology of hormones and glands of internal secretion, with special emphasis on those concerned with the physiology of reproduction. Prerequisites: Zoology 105, Chemistry 1a. Lecture 1:30 TT; 1 hr. quiz. Mr. Meyer.

123. Advanced Entomology. I, II; *cr. For students who desire to pursue some special line of advanced entomological work. Prerequisite: Zoology 118. Lab. fee $2.50. Mr. Noland.

124. Limnology. I; 2 cr. The geology, physics, chemistry, and biology of lakes, supplemented by training in limnological methods. Special attention is given to studies on Wisconsin lakes. Prerequisite: Zoology 1, Chemistry 1a. 4:30 TT. Mr. Juday.

125. Plankton Organisms. II; 2 cr. Identification, distribution, variation, and economic importance of plankton forms. Field work consists of physical, chemical, and biological observations on lakes. Prerequisites: Botany 1, Zoology 1. Lab. fee $2.00. 9-12 S. Mr. Juday.

126. Field Zoology. I; 4 cr. Field trips; observing and collecting of local animals; identification and study of collected species in the laboratory. Prerequisite: Zoology 102 or consent of instructor. Lab. fee $5.00. 1:30-5:00 TT. Mr. Hasler.

180. Advanced Zoological Problems. I, II; 2-5 cr. Individual work dealing with advanced phases of zoology not taken up in the regular courses. Prerequisite: Open to upper-group majors in the department. Must be approved in advance by adviser, departmental chairman and dean. Lab. fee $5.00. Staff.

200. Graduate Research. I, II; 2-5 cr. Lab. fee $5.00. Staff.

201. Proseminary. Yr; 2 cr. Devoted to a discussion of the history of zoology. Distribution of graduate students between seminary and proseminary will be arranged in consultation with the instructors in charge. Specially qualified seniors may be admitted to the proseminary. 3:50-5:30 F. Mr. Wagner.

214. Anatomy and Physiology of the Cell. I; 2 cr. The physics and chemistry of the cell, theory of staining, colloidal nature of protoplasm, phenomena of metabolism, stimulation and transformation of energy. Prerequisites: Chemistry 1; Zoology 105 or 111. 11 TT. Mr. Guyer.

215. The Cell in Development and Inheritance. II; 2 cr. The chromosomal mechanism of the cell, and its relation to recent discoveries in experimental embryology and genetics. Prerequisite: Zoology 105. 11 TT. Mr. Guyer.

216. Cytology. Yr; 3 cr. An introduction to cytological technique and the general field of cellular biology. Prerequisite: Zoology 111. Hours by arrangement. Lab. fee $5.00. Mr. Guyer.

220. Seminary. Yr; 2 cr. Oral reports and discussions of advanced zoological subjects by members of the group. 3:30-5:30 F. Mr. Guyer.

COLLEGE OF ENGINEERING

F. Ellis Johnson, Dean

The College of Engineering is organized in the belief that a thoroughgoing fundamental training is the first essential to a successful engineer. It is believed that this fundamental training may be best secured not only by theoretical study, but by giving attention as well to the practical application of the principles involved. 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. In carrying out this plan, the mathematical and theoretical courses constitute the main body of the program in the earlier years, and the later years are devoted more largely to the application of these fundamentals to engineering problems.

Engineering students are urged to take their elective work in foreign language, advanced English, economics, public speaking, and other subjects of a general rather than a technical nature.

BUILDINGS

The main building of the College of Engineering contains the offices of administration, the engineering library, the materials testing laboratory, and the departments of drawing, mechanics, and structural, highway, and railway engineering. The Mechanical Engineering Building has recitation, lecture, and drafting rooms, the steam and gas laboratories, and the engineering shops. A third building contains the electrical laboratories; a fourth, the laboratories for chemical engineering; a fifth, the hydraulics laboratory; and the sixth, the Mining Building, contains the ore-dressing, assay, and metallurgical laboratories.

For chemistry the engineering students go to the Chemistry Building, for physics to Sterling Hall, for natural sciences to Science Hall and the Biology Building, and for language, mathematics, and similar work to other buildings of the University. In this way the students of engineering come into daily contact with the students in the other university courses.

LIBRARIES

The Library of the College of Engineering is located in the Engineering Building and contains a large collection of technical books and periodicals. The current numbers of about 250 engineering periodicals are available in the reading room, and the bound volumes in the library include complete sets of all the important transactions and magazines. In addition to the college library, there are the University Library, containing about 443,300 volumes and 80,000 pamphlets, the Library of the State Historical Society (296,300 volumes and 322,500 pamphlets), the Library of the Wisconsin Academy of Sciences, Arts, and Letters (8,000 titles), and the Madison Free Library System (121,750 volumes), to which students have free access.

ADMISSION

See section on Admission, page 34

GENERAL REGULATIONS

SPECIAL NOTICE REGARDING ALGEBRA

One and one-half units of algebra are required as preparation for the first semester of mathematics regularly scheduled for freshman engineers. Students will be admitted to the College of Engineering with one unit of algebra but these students must normally take one semester of algebra in the University without credit. Students who are deficient in algebra usually complete their freshman mathematics by taking the second semester of the course in the summer school following the freshman year.

The first unit of algebra should include the following subjects: addition, subtraction, multiplication, division of polynomials, equations of the first degree with one unknown number, simultaneous equations of the first degree, including the graphical solution of a pair of linear equations with two unknowns; factoring; fractions; the solution of quadratic equations.

The additional one-half unit should cover the following subjects: simultaneous quadratic equations; ratio, proportion, and variation; elementary theory of exponents and radicals; the theory of quadratic equations; graphical representation of simple relations between two variables; binomial theorem for positive integral exponents; logarithms; arithmetic and geometric progressions.

All students entering the College of Engineering will be tested in algebra by class work and by an examination given shortly after the beginning of the first semester. Usually students having but one year of high-school algebra are unable to pass this examination. It is essential that students in the engineering courses shall possess a good working knowledge of algebra at the time when they begin their course, and it is the purpose of the examination to secure this by requiring a review of the subject shortly before entering the University. Students failing in the test are not permitted to continue with regular freshman mathematics, but are required to take a review of algebra during the first semester. A special non-credit course is provided for this purpose.

ADVISERS

At the beginning of each semester the students consult their faculty advisers as to the selection of subjects and the arrangement of programs. These advisers keep in touch with the student's work during the semester, receive reports from instructors as to progress, suggest methods for improvement in work, and report gross deficiencies to parents or to the faculty.

Reports to the parents or guardians on the scholastic standing of students are sent from the Registrar's office at the end of each semester.

GRADE-POINT SYSTEM

Under the grade-point system, points are awarded as follows: For Grade A (*excellent*), three points for each credit; for grade B (*good*), two points; for grade C (*fair*), one point; for grade D (*poor*), no points. In the College of Engineering at least 146 grade-points and 146 credits, exclusive of freshman lecture, freshman band, and physical education, are required for graduation

from any one of the four-year courses. Exceptions to this are made in the Engineering-Law course (see page 272). No student will be recommended for the degree of Bachelor of Science who does not earn at least one grade-point per credit during the last two semesters of his attendance at the University.

HONORS

Honors and high honors are awarded at the end of the sophomore year, and at graduation, to students who have spent not less than two full years in residence in the University. The studies, however, may be taken in residence at Madison or Milwaukee, or partly by correspondence. In computing credits and points for honors or high honors, the following subjects are not included: sub-freshman subjects, physical education, freshman band, and freshman lectures; credits obtained by special examinations, and credits earned at other institutions.

Sophomore Honors and Sophomore High Honors are awarded on the basis of a minimum of two years' work (not less than 60 credits, exclusive of physical education, freshman band, and freshman lectures) completed in the University. A student earning during these two years 135 grade-points, plus 1.5 grade-points for each credit above 60 will be awarded *sophomore honors;* a student earning during these two years 165 grade-points plus 2 grade-points for each credit above 60, will be awarded *sophomore high honors.*

Honors and High Honors at Graduation. Students having an average of 2.25 or more and less than 2.75 points per credit at graduation, will be awarded *honors.* Students having an average of 2.75 or more points per credit will be awarded *high honors.*

FEES AND EXPENSES

See section on Student Expense, page 13

COURSES OF STUDY AND DEGREES

The College of Engineering offers six systematic four-year courses leading to the B.S. degree.

Civil Engineering
Mechanical Engineering
Electrical Engineering
Chemical Engineering
Mining Engineering
Metallurgical Engineering

Students who complete any of the above four-year courses are graduated with a 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.

See page 272 for outline of six-year Engineering-Law Course.

ELECTIVES FOR STUDENTS IN THE COLLEGE OF LETTERS AND SCIENCE WHO PLAN TO TAKE ENGINEERING LATER

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 51, 52, 54, and 55; Physics 1 or 51 and 52; Chemistry 1 or 2; Mechanical Drawing 1, 2, and 3; Topographical Engineering 1, 2, 3, and 104, or Machine Design 1; Mechanics 1, 2; Electrical Engineering 1 and 51; Chemical Engineering 12, 18, and 111; Mining Engineering 101, 121, 122; and Geology 9.

It is well also to elect some of the freshman and sophomore shop work as extra studies.

GRADUATION IN MORE THAN ONE OF THE ENGINEERING COURSES

Graduates in any of the engineering courses may be graduated in any other engineering course after one year of additional study. However, students who contemplate doing this should make their elections, especially in the senior year, with this end in view.

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 topographic engineering field work and two weeks of railway engineering field work. These courses are given at the University Survey Camp at Devils Lake, Wisconsin. For mechanical engineering the requirement consists of not less than six weeks of approved summer work in industrial practice. Electrical engineers are required to take six weeks of approved summer work in an engineering or industrial organization. The chemical engineers are required to work five weeks, at the close of the junior year, in the university laboratory on chemical manufacture. Mining engineers spend a considerable portion of two summer vacations at work in the different mining regions and metallurgical centers. A very detailed report is submitted of their observations of conditions, methods, and operations in the district visited. In addition the long mine and metallurgical inspection trip is taken at the end of the junior year.

INSPECTION TRIPS

Inspection trips, for visiting industrial plants, are required of all engineering students during the junior and senior years. They are arranged and conducted by members of the faculty of the various departments and are designed to illustrate the work of the several courses.

The electrical and mechanical engineers take one trip in the spring of the junior year and another in the autumn of the senior year. The trips take a total of a week's time. Visits are made to plants in Milwaukee, Kenosha, Waukegan, Chicago, Buffington, and Gary.

The civil engineers visit the cities of Chicago and Milwaukee, the former in the spring of the junior year, the latter in the autumn of the senior year. Each of these trips takes three or four days.

The chemical engineers make two trips of three days each in the spring: in the junior year to the Appleton and Milwaukee districts and in the senior year to Chicago and vicinity.

In the second semester of the freshman year, mining engineers take a trip to a mine in one of the nearer districts for the purpose of a complete mine survey, and while there make a complete inspection of the operation.

In metallurgy the students annually inspect the metallurgical works around Chicago, the trip lasting a week.

At the end of the junior year, or, if advisable, just after their commencement, students in the courses in mining and metallurgy are required to take a long western inspection trip, visiting mining and metallurgical centers throughout the northwest. This trip lasts about six weeks.

THESES

In all courses, candidates for a second or a professional degree in engineering shall submit a thesis. The thesis requirements for the B.S. degree in the different courses in the College of Engineering are as follows:

In the civil engineering course a thesis is required. In the electrical, mechanical, and mining engineering courses a thesis is optional. In chemical engineering a course in special problems replaces the thesis requirement.

If a thesis is elected, the subject of the thesis shall be selected by the student after consultation between the student, his adviser, and the instructor who is to direct the work, and it shall be submitted to the Course Committee for approval. The total number of credit hours granted for this work shall be not less than three nor more than five, except by special action. The thesis is to be typewritten according to specifications furnished by the librarian of the University, and before it is accepted it must be approved by the instructor under whom the work has been done. It shall be deposited in the University Library by the second Friday before commencement.

ADVANCED INDEPENDENT STUDY

Graduate students and "upper-group" juniors and seniors in engineering may satisfy some elective credits in their various courses by advanced independent study of subjects or problems suitable for analytical investigative work. To validate such an election, the student's application and proposed project must be approved by his adviser and by the course committee of the department in which the student is enrolled. Such elections shall be placed on the student's semester study list under the course numbers 180 for undergraduate students and 280 for graduate students, and the approval of the course committee shall be recorded by the adviser on the class cards. The course committee will specify the number of credits for which the proposed independent study is approved. Studies involving laboratory work are subject to a fee of $3.00 per laboratory credit.

The proposed study may be of an economic, historical, statistical, theoretical, or experimental type. The object of the study will be to carry forward the investigative work of the departments, and to develop the initiative and investigative ability of the student. The student must submit a typewritten report of his study to be kept for reference in the records of the department. Studies of unusual merit will be accepted as theses and filed in the University Library.

FRESHMAN LECTURES

The College has provided a course of lectures for freshmen. Attendance is required. In the lectures of this course it is the aim to give the student a more adequate conception of the work of the engineer, to make clear the kind of training which furnishes the best preparation for the practice of the engineering profession, and to call attention to the methods of study which have been found to produce satisfactory results. The course also includes several lectures on subjects of more general interest.

SPECIAL LECTURES

It is the practice of the College to provide each year a number of lectures on various phases of engineering practice. These lectures are for the most part given by prominent non-resident engineers and professors; some are given by Wisconsin professors. Their purpose is to enliven the interest of the student and to broaden his horizon, rather than to give specific instruction.

GRADUATE WORK

The graduate work in the College of Engineering is a part of the Graduate School of the University, and is in charge of an administrative committee. Excellent opportunities are offered in the various departments for advanced theoretical work and for research. A special fund is available to be devoted exclusively to experimental work in the engineering laboratories.

For admission to the Graduate School an official transcript of the undergraduate record of the applicant should be forwarded to the Dean of the Graduate School, Bascom Hall, some weeks in advance of the opening of the session.

The degree of Master of Science (in civil engineering, mechanical engineering, etc.) is conferred upon graduates of approved institutions who have completed suitable undergraduate courses and who pursue advanced professional study at the University for one year or more, present a satisfactory thesis, and pass an oral examination upon the field of their graduate work.

The degrees of Civil Engineer, Mechanical Engineer, Electrical Engineer, Chemical Engineer, Engineer of Mines, and Metallurgical Engineer are conferred upon graduates of the College of Engineering of the University of Wisconsin who have spent five years in professional work, at least one of which must have been in a position of responsibility, and who present a satisfactory thesis.

The degree of Doctor of Philosophy is conferred upon graduates of the engineering courses under the same requirements as apply to graduates of other divisions of the University.

For statements of these requirements, see Graduate School.

CIVIL ENGINEERING COURSE

The course in civil engineering is designed to accomplish two things: First, it aims to give its graduates sufficient skill in certain technical operations to enable them to be of immediate value to an employer. The graduate enters civil engineering as a computer, draftsman, instrument man, timekeeper, or inspector, and he should be able to do creditable work in some one of these lines. Second, the course aims to train men to analyze engineering problems scientifically and reach sound conclusions about them.

The first two years of the course parallel closely the first two years of the other engineering courses in this college and are devoted chiefly to the study of English, mathematics, physics, and chemistry. During the last two years of the course the student is brought into contact with problems in various fields of civil engineering, partly to give him some familiarity with those fields, but chiefly to develop his powers of analysis and his judgment. Excellent laboratories enable the student to verify the theory he learns in the class room and to become familiar with research methods.

In addition to the technical objectives outlined above, the course is designed to give a training that will enable its graduates to hold their own in business and social intercourse and rise to the highest positions of responsibility

in business and public affairs.

The course is administered with sufficient flexibility to permit a student to satisfy any reasonable desires in regard to the subjects to be studied. Those students who desire a greater amount of liberal education than can be crowded into a four-year curriculum can arrange special five- and six-year programs.

The four-year course leads to the degree of Bachelor of Science. The degrees of Master of Science and Doctor of Philosophy can be earned by graduate work. The degree of Civil Engineer is granted to graduates of the course who have had five years of successful practice in civil engineering and who comply with certain requirements.

EQUIPMENT

THE SURVEYING LABORATORY contains all instruments needed for extensive triangulation, topographic, hydrographic, and railroad surveys, including aneroid barometers, baseline apparatus, calculating machines, compasses, current meters, heliotropes, levels, invar tape, pantographs, plane tables, planimeters, precise-levels, sextants, sounding apparatus, theodolites, transits, and other smaller articles of surveying equipment.

THE STRUCTURAL ENGINEERING DEPARTMENT owns several autographic extensometers, a deflectometer for determining bridge stresses under moving train loads and a Beggs Deformeter. 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 designs.

THE TESTING LABORATORY is supplied with a 600,000-pound hydraulic universal testing machine (designed in the laboratory) taking tension and compression specimens 29 feet and beams 39 feet long; a Riehle torsion machine taking shafts 15 feet long and 3 inches in diameter; a 100,000-pound Johnson beam machine taking beams 22 feet long; seven Olsen and Riehle universal machines from 10,000 to 200,000 pounds capacity; a Thurston torsion machine; a Russell impact machine; machines for fatigue tests of metals; Brinell, Rockwell, and scleroscope hardness testers; several small beam and wire machines; an automatic electric furnace for metals; a 3-ton refrigerator for freezing tests; a Smith concrete mixer; good equipment for tests of plain and reinforced concrete; a room equipped with humidity and temperature controls; and appliances for testing road-building material. There is a full supply of necessary apparatus for making standard tests of cement, baths, self-recording thermometers, complete equipment of 1,000-pound Riehle and Olsen testing machines, etc.

HYDRAULIC LABORATORY. A special building for this laboratory is located on the shore of Lake Mendota. It is equipped for theoretical and experimental research work. The facilities are especially good for studying those problems where large quantities of water are needed. A direct-connected 30-inch centrifugal pump furnishes up to 35,000 gallons of water a minute under a twelve-foot head. This water is delivered into a receiving chamber connected with various conduits and channels. Investigations can be conducted covering the flow in such channels and conduits together with the effects of dams, weirs, gates, racks, submerged orifices, and other features encountered in hydraulic design.

A concrete reservoir, 50 ft. in diameter by 15 ft. deep, with a capacity of 220,000 gallons, is located on the bluffs at an elevation of about 60 ft. above the laboratory. It is connected to the laboratory by a 16-inch delivery pipe and 10-inch supply line. Its installation has made possible experiments which require a considerable flow of water under a very steady head, tests on turbines under heads up to 50 feet and the ready calibration of the largest weirs in the laboratory.

Favorable facilities are afforded for the study of losses due to valves and other forms of restricted passages or to sudden changes in pipe section, and for the study of flow in straight and curved pipes, and through weirs and orifices of practically any type. A large assortment of accurate apparatus for the measurement of quantities, velocities, and pressures, both in open and closed channels, is available, including a variety of water meters, among them various Venturi meters. The laboratory is equipped with several types of water-wheels. The pumping machinery includes duplex and triplex reciprocating pumps, centrifugal pumps, vacuum pumps, jet pumps, a hydraulic ram, and an air lift.

The electric power supply is favorable to accurate work on hydraulic machine testing. A 175 k.w. synchronous motor generator set supplies 220 volts, direct current, through four feeder lines into the laboratory. Unusually exact speed regulation can be obtained with noninterference of testing apparatus.

The regular course of instruction includes a careful selection of typical determinations, and opportunities are offered for study and research work in practical hydraulics and hydraulic machinery as well as in more advanced lines.

SANITARY LABORATORY. A well-equipped sanitary laboratory adjoins the Hydraulic Laboratory. The apparatus available for the use of the students includes all modern equipment necessary in making accurate sewage and trade waste analysis. The course of instruction includes work of an advanced nature, where the student can observe for himself the analysis studied in the theoretical courses, and at the same time carry on some research work to assist in the solution of many of the present problems in sewage and trade waste disposal and in stream pollution. Sewage plants in towns near the University are used for graduate studies.

THE ROAD MATERIALS TESTING LABORATORY. In cooperation with the Wisconsin Highway Commission, the University offers instruction in the testing of both bituminous and non-bituminous road materials. The equipment in the laboratories is sufficient to perform all of the standard tests.

OTHER LABORATORIES. The mechanical and electrical laboratories and the machine shop are open to civil engineering students; they will be found described on subsequent pages. For description of the laboratories of the science departments of the University, all of which are open to engineering students, see other portions of this Announcement.

CIVIL ENGINEERING COURSE

LEADING TO THE DEGREE OF BACHELOR OF SCIENCE (CIVIL ENGINEERING)

FRESHMAN YEAR

First Semester	Credits	Second Semester	Credits
Math. 51—Elementary analysis	5	Math. 52—Elementary analysis	5
Drawing 1—Elements of drawing	3	Drawing 2—Elements of drawing	3
Chem. 2a—General chemistry	4	Chem. 2b—General chemistry	4
**Engl. 1a—Freshman composition	3	**Engl. 1b—Freshman composition	3
Top. Engr. 1—Elementary surveying	2	Top. Engr. 1—Elementary surveying	2
Freshman lectures	0	Freshman lectures	0
*Physical activity requirement		*Physical activity requirement	
	17		17

**Students who receive an "A" in English 1a may substitute a free elective for the three credits in English 1b.

*All male freshmen are required to take Military Science, Physical Education, or Band. Those electing Military Science must take it for at least two years. Students completing the

SOPHOMORE YEAR

First Semester	Credits	Second Semester	Credits
Math. 54—Differential and integral calculus	4	Math. 55—Calculus	4
Physics 51—General physics	5	Physics 52—General physics	5
Railway Engr. 1—Curves and turnouts	2	Mech. 1, 2—Statics, dynamics	5
Railway Engr. 2—Route surveying	3	Top. Engr. 104—Advanced surveying	3
Top. Engr. 3—Land surveying	3		
	17		17

Six weeks of summer camp, including two weeks of Railway Survey and four weeks of Topographical Engineering.

JUNIOR YEAR

Mech. 3—Mechanics of materials	5	Mech. 52—Materials of construction	2
Mech. 51—Materials of construction	2	Railway Engr. 110—Masonry	2
Hydr. 2—Elementary hydraulics	4	Hydr. 122—Sewerage	2
Drawing 3—Descriptive geometry	3	Struct. Engr. 2—Structural analysis	4
Geol. 9—Engineering geology	3	Econ. 1a—General economics	4
Hydr. 110—Hydrology	2	Engr. Engl. 1b—Papers and discussions	1
Engr. Engl. 1a—Papers and discussions	1	Highway Engr. 102—Elements	3
		Electives	2
		Inspection trip	0
	20		20

SENIOR YEAR

Hydr. 121—Water supply	3	Engr. Contr. 101—Contracts and specifications	2
Struct. Engr. 3—Structural design	3	Struct. Engr. 4—Structural design	2
Struct. Engr. 105—Reinforced concrete	3	Elect. Engr. 10, 60—Direct current machinery	4
Steam and Gas 7—Engines and boilers	2	Railway Engr. 111—Substructures	1
Steam and Gas 127—Laboratory	2	Engr. Engl. 2b—Papers and discussions	1
Engr. Engl. 2a—Papers and discussions	1	Thesis	2-4
Thesis	1	Electives	7-5
Electives	4		
Inspection trip	0		
	19		19

At the beginning of the junior year, students in civil engineering will elect to pursue one of the following groups of studies. At least ten of the elective credits shall be selected from the courses listed below under chosen option, except in the General Option and in the Law Option.

basic course in Military Science (four semesters) are granted four elective credits towards graduation. Students completing the advanced course in Military Science (four semesters) are granted eight additional elective credits towards graduation. Those who continue with Band will receive one credit per semester beginning with the sophomore year.

GENERAL OPTION

This option is open to students who do not wish to specialize. All electives are free.

AERONAUTICAL OPTION

First Semester		Second Semester	
*Aeron. 101—Aerodynamics	3	Aeron. 102—Airplane stress analysis	3
Aeron. 103—Design of airplane parts	2	Aeron. 104—Propeller theory	2
Aeron. 108—Welding	2	Aeron. 110—Aeronautical meteorology	1
Aeron. 109—Airplane engines	2		

EROSION CONTROL

Agric. Econ. 117—Outlines of land economics	3	Hydr. 114—Hydraulic design	2
Hydr. 113—Hydrological investigations	2	Geol. 136—Principles of erosion	3
Agric. Engr. 106—Soil erosion causes and control	4		

HIGHWAY OPTION

Highway Engr. 103—Advanced design	3	Highway Engr. 104—Materials testing	3
Highway Engr. 105—Maintenance	2	Struct. Engr. 112—Design of highway structures	2
City Plan. 104—Municipal engr. practice	2	City Plan. 101—(repeated)	2
Econ. 168—Highway transportation	3		
City Plan. 101—Planning and zoning	2		

HYDRAULIC OPTION

Hydr. 102—Testing hydraulic machines	2	Hydr. 105—Hydraulic machinery	2
Hydr. 104—Waterpower engineering	3	Hydr. 112—River and irrigation hydraulics	2
Hydr. 113—Hydrological investigations	2	Hydr. 114—Hydraulic design	2
Hydr. 115—Advanced hydraulics	2		

LAW OPTION

Students desiring to take civil engineering as a pre-law course are referred to the statement on "The Six-Year Course in Engineering and Law," page 272 in this bulletin. Such students should take 2 credits in the field of the social sciences during the second semester of the junior year. During the senior year they will take 13 credits of law and 19 credits of engineering. The degree of bachelor of science, civil engineering, will be granted at the end of the fourth year upon satisfactory completion of the requirements.

MUNICIPAL OPTION

City Plan. 101—Planning and zoning	2	Hydr. 112—Drainage and river hydr.	2
City Plan. 104—Municipal engr. practice	2	Hydr. 123—(repeated)	1
Hydr. 123—Sewage treatment and municipal waste disposal	1	City Plan. 101—(repeated)	2
Hydr. 124—Water and sewage analysis	3	Hydr. 127—Sanitary engr. seminar	1
Hydr. 126—Sanitary engr. seminar	1		

RAILWAY OPTION

Railway Engr. 107—Advanced design	2	Railway Engr. 107—(repeated)	2
Mining 101—Excavation and tunneling	3	Econ. 136—Transportation problems	3

First Semester		Second Semester	
Econ. 1b—General economics	4	Econ. 142—Public utilities	3
Econ. 135—Railway transportation	2-3	Econ. 189—Railway rates and traffic	2-3

SANITARY OPTION

Agric. Bact. 1—General survey	4	Agric. Bact. 2—(Agric. Bact. 1 repeated)	4
Hydr. 103—Experimental sanitary engr.	1-5	Hydr. 103—(repeated)	1-5
Hydr. 123—Sewage treatment and municipal waste disposal	3	Hydr. 123—(repeated)	3
Hydr. 124—Water and sewage analysis	3	Hydr. 126—(continued)	1
Hydr. 126—Seminar	1		

STRUCTURAL OPTION

Struct. Engr. 106—Reinf. concrete arch design	2	Struct. Engr. 108—Stresses in higher structures	2
Struct. Engr. 107—Stresses in higher structures	2	Struct. Engr. 111—Reinf. concrete building design	2
Mech. 101—Advanced statics	2	Struct. Engr. 112—Design of highway structures	2
Mech. 106—Advanced strength of materials	3	Mech. 108—Advanced materials of construction	2

INSPECTION TRIPS

Junior Trip, 2nd semester. Prerequisites: Ry.E. 2, Ry.E. 110, Mech. 52 or concurrent registration.

Senior Trip, 1st semester. Prerequisites: Structures 2, Hydraulics 2 and 122.

MECHANICAL ENGINEERING COURSE

The four-year course offered in mechanical engineering leads to the degree of Bachelor of Science (Mechanical Engineering) and is open to graduates of accredited high schools, and students entering by examination or with proper credits from other schools or colleges.

The first two years of the course, and a portion of the junior year, are devoted principally to the fundamental studies of mathematics, chemistry, mechanical drawing, machine design, physics, mechanics, and shop work, while during the junior and senior years the professional subjects are introduced. The treatment of these professional subjects is along as broad lines as possible, in order to make them of the greatest educational as well as technical value to the students. As it is difficult for most students to determine in advance their professional career it is desirable that their college training shall follow a general direction and be free from excessive specialization. To this end the mechanical course includes studies dealing with the elements of direct and alternating currents and hydraulics, in addition to the subjects of steam engines and boilers, heating and ventilating, air conditioning, machine design, and shop practice.

In the senior year courses are offered which are designed to give the commercial point of view in many of the problems of engineering. With these subjects the mental attitude of the student is brought into conformity with that of actual practice as far as possible.

Elective credits in the junior and senior years allow students in mechanical engineering to take fundamental subjects in other engineering courses, such as

civil, chemical, or mining and metallurgical engineering in addition to correlated work in economics and business administration as well as general subjects.

EQUIPMENT

THE ENGINEERING SHOP LABORATORIES afford excellent facilities for mechanical practice. The six laboratories are for machine, forge, pattern, foundry, carpentry, and welding practice.

The Machine Laboratory has a well balanced and modern equipment for handling classes in elementary, advanced and general shop practice. Production methods are emphasized. In making jointers, pumps, motors, etc., a johannson block and other precision tools afford practice in modern measuring devices.

The Forge Laboratory is equipped with the latest design down-draft forges and direct-connected blast-exhaust unit. Shears, grindstones, emery wheels, and hand tools form an adequate equipment.

The Pattern Laboratory has 21 wood lathes and standard individual work benches with the necessary tools for general pattern making. Two band saws, two jointers, a circular saw, a surfacer, and three combination sanders form part of the machine equipment.

The Foundry is equipped with a 36-inch cupola, brass furnace, core oven, molding machines, individual molding benches with sets of tools, air rammers, sand blast equipment, a motor-driven riddle, a two-ton electric crane, and an analysis laboratory.

The Carpentry Laboratory is well equipped for the needs of agricultural carpentry. Ample tools for this phase of work are provided.

In the Welding Laboratory ample provision is made for practice in electric arc and acetylene welding by an up-to-date equipment representative of the best manufactures. A generator is used for instructional work and to supply acetylene for the laboratory. Weld testing apparatus is available.

EXPERIMENTAL ENGINEERING. The work in this subject is planned so that it illustrates the principles taught in the classroom by tests on the various types of heat engines. The student is first taught how to calibrate the instruments used in such tests, to set valves and then to make efficiency tests of engines, boilers, and other machinery. In the junior year the students study the more common methods of measuring power and determining mechanical efficiency. Practice is also given in the testing of lubricating oils.

As preliminary to the testing of boilers instruction is given in the use of the various steam, coal, and gas calorimeters, flue gas apparatus and apparatus for the analysis of fuel and gases. Instruction is also given in the methods of measuring flow of air and of testing air compressors, blowers, and refrigerating machines. The courses are laid out with the idea of giving the necessary information and practice in the testing of various machines and of encouraging accuracy in work and originality in investigation. For thesis work the laboratories offer unusual opportunities in the way of special apparatus.

STEAM AND GAS ENGINE LABORATORY. The Steam and Internal-Combustion Engine Laboratory extends two stories in height and conforms with modern power plant design. There is a long open condenser pit, a traveling crane, and other modern facilities.

All of the equipment of the laboratory is specially arranged for experimental work and for demonstration of the principles discussed in the classroom. A means of supplying load for each of the engines is provided. On many of the engines a simple friction brake is used, while for high-speed units either electric

generators or water dynamometers are used. The steam driven units are supplied with condensers in order that the exhaust steam may be weighed.

The more important *steam driven units* are a 25-kilowatt Curtis turbine, a 25-horsepower simple Corliss steam engine, and a complete refrigeration plant. The main unit of the refrigeration plant is a 15-ton direct connected Corliss engine-driven ammonia compressor. Also, this plant includes a double-pipe ammonia condenser and a double-pipe brine cooler besides some automatic control equipment. A 50-horsepower cross-compound poppet-valve steam engine is fitted with steam jacketed receiver and cylinders. Tests can be made with either superheated or saturated steam, condensing or non-condensing with or without steam in the steam jackets, and with or without reheating between cylinders. This furnishes a means for studying the effect of such conditions upon steam consumption. Moreover, the speed of this unit may be varied from 90 to 125 revolutions per minute, while the cut-off has a range of automatic variation between 0 and 95 per cent of the stroke.

A 50-horsepower compound steam engine is directly connected to a two-stage air compressor. The engine is equipped with a Meyer valve gear and operates condensing. The base of the unit contains an intercooler for the air and a receiver for the steam end. An orifice is used for measuring the quantity of air compressed. A locomotive-type air compressor is also arranged for test purposes.

Equipment is arranged for determining the accuracy of steam metering devices. Steam flows through an electric flow meter, a float type of mechanical flow meter, a Pitot tube, a Venturi meter, and several orifices and nozzles. By condensing and weighing the steam, a calibration may be obtained for each method of measurement.

Such stations as the University Central Heating Plant, the Capitol Heating Plant, the central station of the Madison Gas and Electric Company, and the City Water Works Plant are used in addition to actual laboratory equipment. Tests are run each year by the students at some of the above mentioned plants. The boiler house of the University which furnishes steam for all the buildings of the institution, both for heating and for power purposes, has a normal capacity of 5,528 boiler horsepower. It is equipped with special testing apparatus so that experimental work may be carried on relating to the economy of boilers under various service conditions.

The *internal combustion* engines range in size up to a 50-horsepower Diesel engine. This is a vertical single cylinder unit of the stationary type. It is a two-stroke cycle engine of the solid injection type, and it will operate on a wide range of fuel oils. There is a 25-horsepower semi-Diesel engine besides some smaller units which will operate on crude oil or kerosene.

Students perform efficiency tests on a 40-horsepower city gas engine. A 20-horsepower engine which was built especially for test purposes can be fitted with a variety of heads, vaporizers, valves, governors, and auxiliary equipment. This permits testing the engine with city gas, producer gas, gasoline, kerosene, alcohol, or other liquid fuels as desired. Floor slots have been provided for setting machinery in the rear portion of the engine laboratory so that units may be quickly set up for temporary test work. Several manufacturers loan engines and other apparatus to the department for special test projects and experimental study.

A hot-air engine is operated on city gas to pump water and demonstrate the possibility of an external combustion engine.

THE CALIBRATION LABORATORY is located on the balcony at the front of the main laboratory. In this laboratory, there are deadweight gage testers, vacuum pumps with mercury columns, and a fluid pressure scale with which

gages and indicators can be tested to pressures of 25,000 pounds per square inch. Steam drums are used for calibrating inside spring indicators under working conditions.

THE OIL TESTING LABORATORY is located on the balcony at the rear of the main laboratory. Its equipment consists of viscosimeters for determining viscosity of oils at different temperatures, and apparatus for determining the flash, fire, and pour points. Among other pieces of oil and gasoline testing apparatus, there is a colorimeter, a centrifuge, a frigistat, a Reid vapor pressure bomb, and distillation apparatus. Most of the State oil tests are performed in this complete and modern laboratory. A fume hood and exhaust blower have been installed so that oil tests may be carried out conveniently and accurately. Many oils are tested both in the oil test laboratory and in actual service in connection with engine tests.

There is also an abundance of equipment for making complete tests for determining the economy and capacity of boilers, engines, and gas machinery. This equipment comprises weighing scales, measuring tanks, pyrometers, thermometers, calorimeters, indicators, revolution counters, tachometers, stop watches, planimeters, hydrometers, psychrometers, recording gages, reducing motions, gas meters, water meters, manometers, draft gages and gas analysis apparatus. The laboratory also contains a number of machines for special test purposes, and several steam injectors and nozzles especially arranged so that test data may easily be obtained.

RESEARCH ROOMS have been provided so that special research projects may be carried on without any interference with other laboratory work. There are five such rooms on the second and third floors of the east wing of the building.

AUTOMOTIVE TESTING LABORATORY. The high-speed, internal combustion engine laboratory is located in the basement at the rear of the east wing of the building. Special testing devices are available for testing marine, airplane, automobile, and truck motors. A 150-horsepower dynamometer furnishes an up-to-date method for testing high-speed engines up to 3,500 revolutions per minute. By a combination of this machine and a calibrated fan dynamometer 250-horsepower can be absorbed. There are many automatic devices used in connection with the dynamometer unit in order to get the greatest possible accuracy of test. Several makes of automobile and airplane motors are available for tests. A track arrangement permits an easy and quick means for shifting the dynamometer from one engine to another. A variable compression single cylinder engine has been installed for the study of the detonating qualities of liquid fuels. Compression ratios can be varied from 3.5 to 1 up to 9 to 1 while the engine is in operation. By means of this engine, gasoline can be rated in octane numbers by the standard research method.

A small, single cylinder Diesel engine has been constructed in order to study combustion conditions in an automotive type of Diesel engine. By means of three special photo-electric cells and cathode-ray oscillographs, a graphical picture of action in the combustion chamber is obtained. Recently, Fairbanks, Morse and Company donated a small single cylinder four-stroke cycle Diesel engine to the laboratory for the purpose of continuing these combustion studies.

BOILER EFFICIENCY TESTING LABORATORY. The boiler room is located between the steam engine laboratory and the heating and ventilating laboratory. Thus it serves as a testing place for both power and heating plant type of

boilers. Efficiency tests can be run on these boilers with a variety of fuels and types of firing. Boiler feed pumps and vacuum heating plant pumps are arranged for test purposes.

A separately fired steam superheater receives high pressure steam from the Central Heating Station supply main and delivers it to a superheated steam main which extends along the condenser pit and connects to all the steam units. A small vertical boiler and engine is used to familiarize the student with the essential parts of a simple steam power plant and the problems connected with its efficient operation. Tests are planned so that they prepare the student for the more complicated plant tests.

HEATING, VENTILATING, AND REFRIGERATING LABORATORY. The single story high ceiling of the central wing of the building furnishes an ideal laboratory for testing various types of heating, ventilating, air conditioning, and refrigerating equipment. At the present time this entire wing is equipped to compare the efficiency of three different types of heating systems.

An air conditioner in this laboratory is capable of washing, cooling, humidifying, and dehumidifying air. A modern type of dust determinator is used in connection with air testing. An extensive arrangement is installed for determining the infiltration of air around doors and windows under various conditions of wind pressure. Types of windows, metal weather stripping, and many types of wall construction have been investigated. Unit heaters and ventilators are arranged for both efficiency and rating tests. Several ventilating fans and blowers are available for test purposes.

Air measurement in the laboratory can be accomplished by a variety of methods. Two meters have been arranged to facilitate their comparison and also to determine the rate of air flow from a centrifugal type fan. A Thomas electric gas meter, a Pitot tube, an anemometer, and orifice are some of the more important metering devices, which are used in this laboratory.

In addition to the heating and ventilating apparatus in this laboratory, the heating system of the building may be used for practical studies. A variety of systems and combinations of heating and ventilating equipment have been installed in different parts of the building for the purpose of making comparative studies.

MACHINE DESIGN LABORATORY. This laboratory is located in the basement in the front portion of the building. The equipment includes a belt testing machine, several forms of transmission dynamometers, and apparatus for testing hoists and screw jacks. Also, there are means for determining the relative efficiency of various forms of shaft bearings.

The Machine Design Department has a large collection of modern working drawings furnished by representative builders in this country and abroad, which are kept on file for reference by students.

A collection of kinematic models is displayed in the main lobby. These were built by Schroeder and by the university shops and are used in the study of mechanism. In addition to these models there are sectional machines consisting of pumps, valves, and gears used to illustrate the design of machine parts. For this purpose the regular shop and laboratory equipment is also regularly employed, the students using this machinery for mechanical drawing models and for comparison in design.

THE FOREST PRODUCTS LABORATORY is a scientific institution engaged in research for the Forest Service, United States Department of Agriculture, in cooperation with the University of Wisconsin. The final objective of the research activities of this organization is to guide and stimulate the economic

development and maintenance of forests through more efficient utilization leading to profitable markets for forest products. To this end it conducts research on the basic properties of wood and other forest products, and on improved methods of production, processing, handling, and use; it cooperates, both in its research and the application of the results, with public and private agencies also interested in the utilization of forest lands. The staff of the laboratory cooperates with that of the University in the courses of lectures and research outlined below. The laboratory offers unusual facilities for research in the field of forest products and possesses very complete scientific and technical equipment for this purpose. In its investigations it approximates closely commercial conditions and cooperates extensively with the various manufacturing establishments in testing out its research on a commercial basis.

The technical investigations of the laboratory are as follows:

(1) Mechanical Properties of Wood. Investigations of strength, stiffness, hardness, and other mechanical properties of commercial woods; effect of treatments on strength; improvements in structural design and fabrication of wood structures.

(2) Seasoning of Wood. Determination of best methods of kiln drying and air drying to eliminate losses; design and operation of dry kilns; studies of commercial kilns; physical properties of woods; moisture content of wood in dwellings.

(3) Shipping Containers. Study of wooden and fiber shipping containers, with special reference to design and specifications to develop containers which will deliver the contents to the consumer in a satisfactory condition at a minimum total cost.

(4) Plywood, Glues, and Laminated Stock. Study of plywood manufacturing problems; strength and design of plywood; development and improvement of glues; study of new uses for laminated construction in commercial work.

(5) By-Products and Chemical Studies. Research in organic, physical and biological chemistry of wood, cellulose, lignin extractives, and naval stores; methods of modifying the properties of wood and of converting wood waste into useful commodities; chemistry of wood preservatives.

(6) Wood Preservation. Research on fungi that attack structural timbers, with investigations aimed at practical means of prevention; the efficiency of various wood-preserving processes and preservatives; other processes to modify the properties of wood, such as fire-resistant and anti-shrink treatments; paints and painting practice.

(7) Pulp and Paper. The suitability of woods and other fibrous materials for pulp, paper and fiber specialties; studies in the chemistry and engineering of pulping and paper making processes; chemical and physical studies of pulps and papers.

(8) Silvicultural Relations. Identification of wood; the effect of growth conditions on the structure of wood; and the relation of the structure of wood to its properties; production of naval stores.

(9) Technical Studies of Wood-Using Industries. Study of the economic utilization of wood with a view to eliminating waste; lumber grades and specifications; methods of measuring, manufacturing, and marketing logs, lumber and small dimension stock; development of efficient uses of wood.

The lectures and research are offered by the staff of the laboratory to both undergraduates and graduates.

MECHANICAL ENGINEERING COURSE

LEADING TO THE DEGREE OF BACHELOR OF SCIENCE (MECHANICAL ENGINEERING)

FRESHMAN YEAR

First Semester	Credits	Second Semester	Credits
Math. 51—Elementary analysis	5	Math. 52—Elementary analysis	5
Drawing 1—Elements of drawing	3	Drawing 2—Elements of drawing	3
Chem. 2a—General chemistry	4	Chem. 2b—General chemistry	4
**Engl. 1a—Freshman composition	3	**Engl. 1b—Freshman composition	3
Shop 1, 2—Elementary shopwork	2	Shop 4, 5—Lathe work, shaping, milling	2
Freshman lectures	0	Freshman lectures	0
*Physical activity requirement		*Physical activity requirement	
	17		17

SOPHOMORE YEAR

Math. 54—Differential and integral calculus	4	Math. 55—Calculus	4
Physics 51—General physics	5	Physics 52—General physics	5
Mach. Design 1—Mechanism	4	Drawing 3—Descriptive geometry	3
Shop 6, 13—Tool making and foundry practice	3	Mach. Design 2—Design practice	1
		Mech. 1, 2—Statics, dynamics	5
	16		18

Summer work, six weeks of industrial practice (see Shop 10).

JUNIOR YEAR

Mech. 3—Mechanics of materials	5	Steam and Gas 22—Elementary testing	2
Mech. 53—Materials of construction	2	Steam and Gas 2—Thermodynamics	4
Steam and Gas 1—Thermodynamics	4	Hydr. 1—Elementary hydraulics	3
Mach. Design 3—Machine elements	4	Mach. Design 4—Advanced design	4
Shop 7—General shop work	2	Mach. Design 12—Machine testing	2
Elective	3	Elect. Engr. 6—Electrical machinery	3
		Elect. Engr. 56—Direct current laboratory	2
	20		20

SENIOR YEAR

Steam and Gas 105—Calculations	2	Engr. Econ. 106—Power plant economics and design	3
Steam and Gas 23—Advanced testing	2	Engr. Econ. 102—Economics of engineering	3
Engr. Econ. 101—Engineering business	3	Steam and Gas 124—Advanced commercial testing	1
Elect. Engr. 7—Electrical machinery	3	Shop 9—Advanced pattern making	1
Elect. Engr. 57—Alternating current laboratory	2	Chem. Engr. 8—Metallography	2
Engr. Econ. 105—Manufacturing and production methods	2	Thesis and electives	9
Electives	5		
	19		19

*All male freshmen are required to take Military Science, Physical Education, or Band. Those electing Military Science must take it for at least two years. Students completing the basic course in Military Science (four semesters) are granted four elective credits towards graduation. Students completing the advanced course in Military Science (four semesters) are granted eight additional elective credits towards graduation. Those who continue with Band will receive one credit per semester beginning with the sophomore year.

**Students who receive an "A" in English 1a may substitute a free elective for the three credits in English 1b.

Electives in the general course outlined above must include at least two credits in advanced Hydraulic Engineering and two credits from list of advanced courses in Steam and Gas.

It is recommended that the remaining electives be on subjects not closely related to technical engineering work. However, should the student desire to select his electives in the Engineering College, the following are suggested for preliminary consideration:

	Credits per Sem. 1st	2nd
Agricultural Engineering	2–3	2–3
City Plan. 101—City planning (repeated)	2	2
Engr. Econ. 107—Seminar	2	2
Engr. Econ. 180—Thesis or advanced individual studies	1–5	1–5
Engineering English	1	1
Hydr. Engr. 104—Water power	3	
Hydr. Engr. 105—Hydraulic machinery		2
Hydr. Engr. 115—Advanced hydraulics	2	2
Mining 124—Metallurgy of iron and steel (repeated)	3	3
Shop 8—Advanced shop problems	2	4
Shop 14—Advanced foundry practice		2
Shop 108—Welding	2	2
S and G 100—Senior thesis	1–5	1–5
S and G 108—Heating and ventilating (repeated)	3	3
S and G 109—Internal combustion engines	2	
S and G 110—Advanced heating and ventilating problems		2–3
S and G 112—Refrigeration		2
S and G 128—Heating and ventilating laboratory		2
S and G 151, 152, 153, 154—Special problems	1–3	1–3
S and G 180—Special reading project	1–3	1–3
S and G 200—Graduate research	3–5	3–5
Struct. Engr. 10—Structural design (repeated)	2	2
Top. Engr. 108—Short course in surveying (repeated)	2	3

ENGINEERING DESIGN GROUP

Mach. Des. 101—Kinematics and dynamics of machinery		2–3
Mech. 106—Advanced strength of materials		3
Mech. 107—Advanced dynamics	3	
Mech. 108—Materials of construction		2
Mech. 109—Graphs		2
Mech. 110—Dynamic stress		2
Chem. Engr. 130—Heat transfer	2	
Math. 110—Higher mathematics for engineers	3	3
Math. 113—Theoretical mechanics	3	3
Math. 250—Theory of elasticity	3	3

Students who wish to select most of their electives from the Engineering Design group should take Math. 110 in the junior year. Hydr. Engr. 1 may be deferred until the senior year.

OPTION IN AERONAUTICAL ENGINEERING

Aeronautics 101—Aerodynamics		3	
102—Airplane stress analysis			3
103—Design of airplane parts		2	
104—Propeller theory			2
108—Welding		2	2
109—Airplane engines		2	
110—Aeronautical meteorology			1
130—Airplane engine testing			2

Due to the fact that the university faculty favors discontinuance of courses in which registration is small, the possibilities of this option depend upon sufficient registration. See notation under Aeron. 101, page 275.

Students who wish to complete the option in Aeronautical Engineering in the senior year must take Aeron. 101 in the first semester of the junior year. Those who take all the courses listed in this option may substitute non-professional electives for Shop 7, M.D. 12, S and G 105, S and G 124, and Engr. Econ. 106. Hydr. Engr. 1 may be deferred until the senior year.

LAW OPTION

Students desiring to take mechanical engineering as a pre-law course are referred to the statement on "The Six-Year Course in Engineering and Law," page 272, in this bulletin. Such students should take 2 credits in the field of the social sciences during the second semester of the junior year. During the senior year they will take 13 credits of law and 19 credits of engineering. The degree of Bachelor of Science, Mechanical Engineering, will be granted at the end of the fourth year upon satisfactory completion of the requirements.

ELECTRICAL ENGINEERING COURSE

The four-year course in electrical engineering leads to the degree of Bachelor of Science (Electrical Engineering) and is open to graduates of accredited high schools and to students entering by examination or with proper credits from other schools and colleges.

The aim of the course is to produce industrious, clear-thinking young men having a working acquaintance with the scientific and economic principles which underlie all engineering practice and a vision of the pleasures and possibilities of continuous growth in engineering service. While engineering practice is kept in view throughout the instruction in the course, this is not for the purpose of conveying a knowledge of the practical details in any one of the many branches of the electrical engineering field. Rather it is for the purpose of imparting an appreciation of engineering methods of procedure.

The successful engineer who develops executive and administrative ability in his technical work eventually assumes an administrative or executive position in which he deals with problems which involve, besides purely technical features, the economic and sociological questions of a civilization which is based so largely upon engineering achievements. To the solution of these problems should be brought the judgment of years of experience founded upon the

broadest possible university training. With this in mind, the course in electrical engineering has been so framed that a good proportion of the studies are non-professional in nature, i.e., studies not directly connected with the more technical phases of engineering. These are pursued for the most part in the College of Letters and Science. Because of the wide latitude of choice permitted, students are urged to give careful consideration, early in their course, to the planning of a worthwhile group of these non-professional studies, the election of which usually begins in the second semester of the sophomore year.

It is further recommended that students who aim to lay the broadest foundation for constructive leadership devote more than four years to their college work combining with their engineering studies a liberal selection of studies outside the College of Engineering.

All classroom work in electrical theory is paralleled by work in the well-equipped laboratories in which the students, working in pairs, acquire a working knowledge of electrical instruments and machines by carrying out tests which illustrate the engineering applications of the principles studied in the classroom. In all of the electrical work, special effort is directed toward training the initiative and the independent powers of thought of the students, so that they may truly make themselves masters of the principles studied, and may thereby lay the foundation for creative professional work. To develop initiative, students are urged, in the senior year, to elect and submit reports on one or more engineering problems requiring analytical investigative work. The studies may be of an economical, historical, statistical, theoretical, or experimental type. Studies of unusual merit are filed as theses in the University Library.

According to their interests and aptitudes, the men who are graduated from this course engage in the following types of electrical engineering work: research, design, maintenance, operating, construction, and sales engineering. The majority enter the employment of corporations owning electric lighting, electric railway, electric power transmission, telephone, telegraph, or radio systems (with the expectation of ultimately becoming superintendents, chief engineers, managers, or owners), the employment of contractors for the construction of electrical plants, or the employment of manufacturers of electrical and allied machinery. A considerable number of the graduates are now found in administrative and teaching positions in the engineering colleges.

GRADUATE STUDENTS. Graduates are offered instruction in advanced theory, design, and experimental investigation relating to the several branches of applied electricity. Students who are candidates for the doctor's or master's degree are offered all the reasonable facilities for carrying on either their major or minor elections in the Electrical Engineering Department. The regulations relating to these degrees are enumerated on another page of this bulletin.

The organization of the department is arranged to afford adequate supervision to advanced students who are carrying on the investigation of original problems, and excellent facilities are offered to such students in the way of laboratory rooms and of special apparatus constructed by the college mechanicians.

EQUIPMENT

THE DYNAMO LABORATORY. The transforming and converting machinery which furnishes the electrical power for all the electrical laboratories is located in the dynamo laboratory. The electrical power for these laboratories is transmitted from the electrical substation of the University to the necessary transforming and motor-generator equipment for furnishing power at the following

voltages and frequencies: Three-phase power at 110 volts and 25 and 60 cycles; and direct current power at 110, 220 and 500 volts.

The dynamo collection consists of a large number of continuous current and alternating current dynamos and motors of different types and sizes. Shunt, series, and compound, continuous current generators and motors; single two- and three-phase, alternating current generators; single-phase and three-phase induction motors; synchronous motors and converters; single-phase commutator type motors and transformers are supplied in various sizes.

The equipment comprises more than fifty dynamos and motors for exclusive laboratory use for the purpose of instruction and experiment. All apparatus necessary for the accurate testing of electrical machinery is available. Large lamp banks, water rheostats, and transformers for loading generators; special prony brakes and electric dynamometers for loading motors; and an unusually complete assortment of the well-known types of ammeters, voltmeters and wattmeters for making accurate electrical measurements are supplied.

Standards Laboratory. Instructional work in courses dealing with electrical instruments and meters and the official standardizing work for the Public Service Commission of Wisconsin are carried on in this laboratory. The laboratory equipment includes a complete duplicate set of standard resistance units and a group of standard cells which are periodically used in connection with the Wolff potentiometer to calibrate the secondary or working standard instruments. The working standard instruments include numerous Weston, Westinghouse, General Electric and Simens-Halske precision and portable ammeters, voltmeters, wattmeters, and a Brooks deflection potentiometer.

Specialized equipment, such as Wheatstone bridges, a Kelvin double bridge, and a Per Cent bridge accurate to within 0.01%, are available for special and precise resistance measurements. For unusual measurements with instruments, power factor meters, frequency meters, low range ammeters, voltmeters, wattmeters and low power factor wattmeters are available. Variable speed motor-generator sets operated in conjunction with a 120 volt storage battery furnish power at any frequency between 10 and 150 cycles. A motor-generator set and a Seth-Thomas clock and relay timing system are part of the permanently installed equipment for accurately testing portable standard watthour meters.

Equipment suitable for field tests includes stop watches, wattmeters, ammeters, voltmeters, power factor meters, cycle counter, synchronous timer, frequency meters, portable standard a.c. and d.c. watthour meters, phase shifting transformer and voltage regulator, Silsbee current transformer testing set, standard current and voltage transformers, and a Westinghouse three-element oscillograph.

Photometric Laboratories. These laboratories comprise a number of rooms especially arranged for the study and testing of lamps and light sources of various kinds. The equipment includes a complete set of photometric standard lamps, a 300-cm. photometer bar, a 500-cm. photometer bar equipped with a single mirror selector, a 72″ Ulbricht spherical photometer, portable photometers, a Lummer-Brodhun spectro-photometer, numerous auxiliary equipment, such as sight boxes of the Bunsen, Lummer-Brodhun, and flicker types, rotating sectored discs and absorption screens.

High Tension Laboratory. The high tension equipment comprises a 50,000-volt, 20-kw. and a 300,000-volt transformer, and an induction regulator permitting the voltage to be gradually varied from zero to 300,000 volts, a surge generator, needle and sphere gaps for measuring high voltage, facilities for testing insulators under wet weather conditions, and general facilities such as

vibrator type and cathode ray oscillographs, for routine tests or special researches upon insulating materials.

COMMUNICATIONS AND CIRCUITS LABORATORY. The equipment for wire communications comprises: demonstration panels and instruments containing all the elements from one subscriber's telephone set through two exchanges to a second subscriber's station, an artificial open wire line having a length of several wave lengths, an artificial cable with loading, telephone repeaters, and the necessary measuring in the form of transmission measuring sets, vacuum tube voltmeters, bridges, and oscillators.

The radio communication equipment comprises a stock of parts for setting up radio transmitter and receiver sets, high frequency oscillators, a signal generator, a field intensity meter, wave meters, several vacuum tube voltmeters, and cathode ray oscillographs. The university broadcasting station, which is under the supervision of the department, affords an opportunity for the study of the problems of radio transmitting design, radio transmission and reception.

The equipment for studying transient phenomena comprises several oscillographs and synchronous switching devices which permit of seeing transient wave forms on the viewing screen of the oscillograph.

For general research work, there are available six modern vibrator type oscillographs, four cathode ray oscillographs, electrical measuring instruments of all types, various types of vacuum pumps, chemical apparatus, etc.

An excellent mechanician's department is maintained by the College of Engineering to construct and repair apparatus for the research and instructional work of the college.

These facilities, together with a liberal research fund, make important and effective research work possible.

ELECTRICAL ENGINEERING COURSE

LEADING TO THE DEGREE OF BACHELOR OF SCIENCE (ELECTRICAL ENGINEERING)

FRESHMAN YEAR

First Semester	Credits	Second Semester	Credits
Math. 51—Elementary analysis	5	Math. 52—Elementary anlysis	5
**Engl. 1a—Freshman composition	3	**Engl. 1b—Freshman composition	3
Drawing 1—Elements of drawing	3	Drawing 2—Elements of drawing	3
Shop 1 and 2, or Speech 8	2	Speech 8 or Shop 1 and 2	2
Chem. 2a—General chemistry	4	Chem. 2b—General chemistry	4
Freshman lectures	0	Freshman lectures	0
*Physical activity requirement		*Physical activity requirement	
	17		17

*All male freshmen are required to take Military Science, Physical Education, or Band. Those electing Military Science must take it for at least two years. Students completing the basic course in Military Science (four semesters) are granted four elective credits towards graduation. Students completing the advanced course in Military Science (four semesters) are granted eight additional elective credits towards graduation. Those who continue with Band will receive one credit per semester beginning with the sophomore year.

**Students who receive an "A" in English 1a may substitute a free elective for the three credits in English 1b.

SOPHOMORE YEAR

First Semester	Credits	Second Semester	Credits
Math. 54—Differential and integral calculus	4	Math. 55—Calculus	4
Physics 53—Mechanics	3	Physics 54—Heat, wave motion, sound, and light	3
Drawing 3—Descriptive geometry	3	Elect. Engr. 1—Electrodynamics	4
Econ. 1a—General economics	4	Elect. Engr. 51—Electrodynamics lab.	2
Elective—Top. Engr. 108 recommended	3	Shop 12—Advanced shop work	2
		Non-professional elective	3
	17		18

Six weeks of approved summer experience in an engineering or industrial organization, to be taken following either the sophomore or the junior year.

JUNIOR YEAR

Mech. 1, 2—Statics, dynamics	5	Mech. 3—Mechanics of materials	5
Physics 55—Adv. electricity, magnetism	3	Elect. Engr. 3—Alternating current theory	4
Elect. Engr. 2—Direct current machinery	4	Elect. Engr. 112—Electrical conduction in gases	4
Elect. Engr. 52—Direct current laboratory	2	Steam and Gas 4—Thermodynamics	3
Steam and Gas 3—Thermodynamics	3	Steam and Gas 28—Elementary testing	2
Electives	3		
	20		18

S. and G. 4 and 28 or Mechanics 3 may be deferred to the senior year.

SENIOR YEAR

Elect. Engr. 4—Alternating current machinery	4	Physics 56—Adv. electricity, light	3
Elect. Engr. 54—Alternating current lab.	2	Elect. Engr. 25—Seminar	2
Hydr. 1—Elementary hydraulics	3	or	
Mech. 53—Materials of construction	2	Mech. 53—Materials of construction	(2)
or		Mach. Design 5—Machine elements	3
Elect. Engr. 25—Seminar	(2)	Electives	11
Steam and Gas 29	1		
Electives	8		
	20		19

ELECTIVES

Of the 28 elective credits,—

10 may be elected without restriction.

12 must be elected in subjects which are non-professional in the sense that they are not prerequisite to the more technical phases of engineering work,—in subjects such as economics, political science, history, literature, languages, logic, ethics, psychology, philosophy, sociology, geology, and the like.

6 must be selected from the following group of electrical applications:

First Semester	Credits	Second Semester	Credits
E. E. 116—Electric circuits	3	E. E. 104—Electrical machine design	3
E. E. 133—Illumination and photometry	3	E. E. 120—High tension insulation	3
E. E. 137—Power distribution	3	E. E. 122—Electric meters	3
E. E. 154—Elements of radio communi-		E. E. 127—Central stations	3

cation ---------- 3
E. E. 155—Thermionic vacuum tube circuits ---------- 3
E. E. 180—Advanced independent studies* 3-5
E. E. 213—Electric machine theory------ 3
E. E. 156—Elements of wire communication ---------- 3
E. E. 157—Radio circuit analysis and design ---------- 3
E. E. 180—Advanced independent studies* 3-5
E. E. 214—Advanced dynamo laboratory- 3
E. E. 232—Advanced electric circuits---- 3

CHEMICAL ENGINEERING COURSE

Industrial development generally and that in the chemical industries particularly has made chemical engineering one of the important branches of the engineering profession. There is now a demand for men having a combined engineering and chemical training. To satisfy this demand the four-year course in Chemical Engineering has been arranged, leading to the degree of Bachelor of Science.

The variety of industries is most comprehensive in which the chemical engineer now generally finds employment. Among these may be mentioned the by-product coke and gas industry and its intimate connection with the manufacture of dyestuffs; the production of paper and chemical pulp; the hardening of vegetable and animal oils into valuable foods; the refining of crude petroleum into gasoline, lubricating oils, and waxes; the manufacture of iron and steel, brass, and alloys; the sulphuric acid and alkali industry; and the construction of machinery and equipment for chemical plants. The electrochemical industries for the refining of copper, the production of caustic soda and chlorine, and the electroplating of metals for prevention of corrosion, have been firmly established. The use of the electric furnace for making steel, brass, and alloys has led to revolutionary changes in these industries.

The graduate usually begins his work as a cadet engineer in the operating or research departments, as a chemist in the laboratory, or in the sales organization. His goal is frequently an executive position in a corporation or in his own business; or he may do consulting work after having gained the necessary experience.

Because the field of chemical engineering is so comprehensive, the training of men for this work must be along broad lines. Besides the required technical courses, instruction in the departments of economics, accounting, and English should be elected by the student, because training in such studies is a most valuable asset. To train men in the technical details of any branch of chemical engineering is not the purpose of the course, since the technique of an industry can best be acquired in subsequent practice. The purpose of the course is to offer instruction in those fundamental subjects which are essential to the chemical engineer in whatever line he may follow.

EQUIPMENT

All of the Chemical Engineering Building is devoted to the laboratories, classrooms and offices of the Department of Chemical Engineering. The building, 45 feet wide by 125 feet long, comprises a high basement and two floors with a commodious attic.

Gas and Fuel Laboratory. Bomb calorimeters of various types are available for testing the heating values of coal and oil; gas calorimeters together

*Must receive the approval of the E. E. Course Committee.

with the necessary meters, scales, and water tanks are also provided. The equipment for gas analysis, for testing and distillation of petroleum products is complete.

PYROMETRY LABORATORY. The pyrometric laboratory is well supplied with base metal and platinum thermocouples, resistance thermometers, and optical and radiation pyrometers for the measurement of high and low temperatures. The equipment includes precision potentiometers and Wheatstone bridges for highly accurate measurements. The furnaces are electrically heated and for accurate control there are ample transformers and reactance coils. The facilities are well adapted for instruction in temperature control and measurements under industrial conditions.

METALLOGRAPHY LABORATORY. Besides the general laboratory for preparing the metal specimens for microscopic examination, there is a photographic dark room for developing negatives and making prints. The microscopes for student use are of a high grade and are provided with attachments for photographing. For research there are larger microscopes capable of high magnification. Accessory apparatus such as furnaces for heat treatment, pyrometers, polishing apparatus, and quenching devices are also provided.

CHEMICAL FACTORY LABORATORY. About one-half of the basement is devoted to chemical manufacture and tests on machinery. A complete laboratory with balance room on the first floor is provided for chemical analysis. Among the important pieces of apparatus are: two rectifying stills each of 15 gallons capacity, three plain oil stills of 10 to 15 gallons capacity, 3 filter presses, a single effect vacuum evaporator, a vacuum drying oven, pressure digester, two hydraulic presses, one of 40 tons maximum pressure, an autoclave of 5 gallons capacity, and crushing and grinding machinery. Besides these there are the necessary wooden, metal and stoneware tanks, basket centrifugal machine, drying oven, furnaces of the muffle, crucible, and reverberatory type, and other desirable appliances to conduct experiments on a semi-factory scale.

ELECTROCHEMISTRY LABORATORY. The general laboratory for electrochemistry is well equipped with tanks, stirring devices, indicating and recording ammeters and voltmeters, and instruments for measuring resistances. Either alternating or direct current is available at the desk of each student. For instruction in electroplating, refining and electrotyping, the equipment comprises polishing lathes, a motor dynamo, and a storage battery. Tanks with capacities from 30 to 60 gallons, are provided for plating and cleaning solutions.

ELECTRIC FURNACE LABORATORY. The electric furnace room for alternating current contains resistance and arc furnaces for general purposes, and a rotating brass furnace of about 100 pounds capacity. There is available for the exclusive use of this laboratory the power from three transformers each of 75 k.v.a. which may be had continuously.

LABORATORY FOR INDUSTRIAL MICROSCOPY. A large, well-lighted room on the third floor is provided specially for the instruction in industrial microscopy. Petrographic and chemical microscopes and many useful accessories are available for the study and identification of textiles, pulp and paper, paint, refractories, leather, etc. A separate chemical laboratory is provided for the preparation of samples.

FOREST PRODUCTS LABORATORY. The United States Forest Products Laboratory is operating in cooperation with the University of Wisconsin. The

work carried on in this laboratory is largely of a chemical engineering nature dealing with the preservation of timber, manufacture of paper, utilization of wastes, and the like. The management of this laboratory provides that chemical engineering students may undertake investigations using the Forest Products Laboratory equipment, so far as such does not interfere with their own work.

CHEMICAL ENGINEERING COURSE

LEADING TO THE DEGREE OF BACHELOR OF SCIENCE (CHEMICAL ENGINEERING)

FRESHMAN YEAR

First Semester	Credits	Second Semester	Credits
Math. 51—Elementary analysis	5	Math. 52—Elementary analysis	5
***Engl. 1a—Freshman composition	3	***Engl. 1b—Freshman composition	3
Drawing 1—Elements of drawing	3	Drawing 2—Elements of drawing	3
Shop. 1, 2—Elementary shopwork	2	Shop. 4, 13—Lathe work, p'aning, milling	2
Chem. 2a—General chemistry	4	Chem. 2b—General chemistry	4
Freshman lectures	0	Freshman lectures	0
**Physical activity requirement		**Physical activity requirement	
	17		17

SOPHOMORE YEAR

Math. 54—Differential and integral calculus	4	Math. 55—Calculus	4
Physics 51—General physics	5	Physics 52—General physics	5
Chem. 120—Organic theory	2	Chem. 120—Organic theory	2
Chem. 121—Organic laboratory	2	Chem. 121—Organic laboratory	1
Chem. Engr. 20—Industrial chemistry	3	Chem. 14—Quant. analysis	5
Free electives	2	Chem. Engr. 18—Fundamentals	2
	18		19

JUNIOR YEAR

Steam & Gas 5—Thermodynamics	3	Steam & Gas 6—Equipment	2
Mechanics 4—Statics, dynamics	4	Steam. & Gas 127—Testing	2
Chem. 130—Physical chemistry	2	Mech. 5—Strength of materials	3
Chem. 131—Physical chem. lab.	1	Mech. 54—Testing laboratory	2
Chem. Engr. 12—Fuel & gas analysis	2	Chem. 130—Physical chemistry	2
Chem. Engr. 111—Unit operations	3	Chem. 131—Physical chem. lab.	1
Chem. Engr. 117—Ch. E. measurements	3	Chem. Engr. 111—Unit operations	3
		Chem. Engr. 116—Thermal processes	4
	18		19

*Either Contracts 101 or Engr. Econ. 101 or 102 are required and must be taken in the particular semester when offered.

**All male freshmen are required to take Military Science, Physical Education, or Band. Those electing Military Science must take it for at least two years. Students completing the basic course in Military Science (four semesters) are granted four elective credits towards graduation. Students completing the advanced course in Military Science (four semesters) are granted eight additional elective credits towards graduation. Those who continue with Band will receive one credit per semester beginning with the sophomore year.

***Students who receive an "A" in English 1a may substitute a free elective for the three credits in English 1b.

SENIOR YEAR

First Semester		Second Semester	
Chem. Engr. 101—Applied electrochem.	4	Chem. Engr. 115—Ind. organic processes	3
Chem. Engr. 119—Metallography	3	Chem. Engr. 122—Special problems	3
Machine Design 5	3	Elect. Engr. 9—A.C. machinery	3
Elect. Engr. 8—D. C. machinery	3	Engr. Econ. 101	3
Chem. Engr. Electives	3	Chem. Engr. Electives	3
Free electives	3	Free Electives	4
	19		19

MINING ENGINEERING COURSE

METALLURGICAL ENGINEERING COURSE

The courses in mining, metallurgy, and geology are offered for students who intend to enter any branch of the mineral industry.

The regular four-year courses in mining and geology leading to the degree of Bachelor of Science (Mining Engineering) and the four-year course in metallurgy leading to the degree of Bachelor of Science (Metallurgical Engineering) are open to graduates of accredited high schools, and are fully outlined below.

The degrees, Master of Science (Mining Engineering) and Master of Science (Metallurgical Engineering), are conferred upon graduates of this and other approved institutions upon completion of one year's work in residence and the submission of a satisfactory thesis. The professional degrees, Engineer of Mines and Metallurgical Engineer, are granted to graduates of the College of Engineering, University of Wisconsin, who have completed five years of professional work in their respective fields and have submitted a satisfactory thesis. For a detailed statement of the requirements for the degree see Graduate School Catalog.

A survey of mineral production and the metallurgical industries in the State and in adjacent territory in what might be called Wisconsin's sphere of influence shows it contains and is located near the greatest reserves of iron ore in the world, on the one hand, and on the other are blast furnaces and rolling mills, foremost among the world's steel producers. Wisconsin is also located near the Lake Superior copper-producing district and contains an important zinc-lead district, which are among the oldest mining districts in the United States. As a foundry state, Wisconsin occupies a unique position among American states for its gray iron foundries, for malleable iron foundries, and for electric steel foundries. In the manufacture of various lines of mining, smelting, and power machinery, Wisconsin is one of the leaders of the world.

The United States is the preeminent mining nation of the world, producing 40 per cent of the mineral production of the world. The mineral production of the world has increased very much in recent years, the output since the year 1900 equalling the total production in all past history up to that date. With this increase in production, the need for technical knowledge and the demand for technically trained mining engineers, metallurgists, and geologists has correspondingly increased. These fields are now the youngest and most rapidly growing branch of engineering, and education in them should fulfill certain needs of the industry in the State and within the immediate region of Wisconsin influence. It should have that broad general basis, as well as detailed technical application to make it best play its part in the future commercial expansion of the United States into foreign fields. It has been said that university education is to promote leadership in the State, leadership in the nation,

leadership in the world's affairs, and to give to the individual the greatest opportunity for advancement. In addition he must have the basic general and technical training of an engineer. He must make a study of the technical and industrial problems of his profession, and he should also broaden himself by a study of the problems of the state and the nation as well as by the study of man.

To give the specialized training to carry out the scheme outlined above, the Department of Mining and Metallurgy organized in the College of Engineering, in conjunction with the Department of Geology of the College of Letters and Science, takes up the specialized work which follows the thorough fundamental training which is the first essential of a successful engineer.

The location of a technical school at a great university has many advantages which cannot be duplicated. It has all the resources of personnel and equipment for instruction and research; it has the advantages of access to great libraries and laboratories, all of which offer facilities that only a great university can maintain. It has the advantages of cooperation with strong independent departments in geology, chemistry, physics, mathematics, mechanics, civil, electrical, chemical, and mechanical engineering, English, foreign languages, commerce, economics and various other subjects which are of vital importance to the mining engineer. The University of Wisconsin is fortunate in the possession of exceptional facilities in all of these lines. As a result, the Department of Mining and Metallurgy is enabled to concentrate all of its effort on and to specialize in its particular fields, and outlines and directs the work of its students in allied subjects. The contact of the student with the larger and broader interests at a university enlarges his outlook on life in general.

EQUIPMENT

The Mining and Metallurgical Building, a fireproof structure which contains about 28,000 square feet of laboratory floor space, is one of two units in the College of Engineering now located on the new Engineering Campus of the University. The first floor of the building is devoted largely to the department's general laboratories and contains a crushing and screening laboratory, a suite of ore-dressing laboratories, a ceramics laboratory, a physical metallurgy laboratory, an X-ray laboratory, and a metallurgical and assay furnace laboratory. On this floor there are also a large classroom and the departmental mechanician's shop.

On the second floor of the building there are two large well-lighted classrooms, a library, a museum, six faculty offices, a large well-equipped chemical laboratory, a balance room, a chemical store room, and several special-purpose laboratories. In this group are the metallographic laboratories and dark room, a polishing laboratory for preparation of metallurgical specimens, a pyrometric standards laboratory and an electrolysis laboratory.

The Crushing and Screening Laboratory contains small laboratory size jaw and gyratory type crushers, rolls, and sample and disc grinders. In addition there are large Blake and Dodge jaw-type breakers, a large roll crusher, and a pebble-mill used for preliminary crushing of ores undergoing ore-dressing or metallurgical treatment. A two-stamp battery dropping 850 pound stamps with a two-plate amalgamating table, and complete screen testing equipment, including a Ro-Tap screen shaker and suitable standard sieves, are located in this laboratory.

Ore-Dressing Suite. The large general laboratory is equipped with jigs of the Harz and Richards pulsator types; Wilfley, Diester, and Diester "Plato"

tables; Ding and Grondal Magnetic Separators: trommel screens and classifiers of various types; and elevators, pumps, settlers, and launder systems necessary to handle the flow of feed to and products from these machines. While each machine is an independent unit provided with ample room for sampling, the arrangement is flexible and machines may be grouped to permit testing of large lots of ores under actual milling conditions when this is necessary. In the ore-dressing laboratories small scale jigs, tables classifiers, and laboratory leaching apparatus permit process testing of small lots of ores to determine methods best adapted to their successful treatment.

The flotation testing laboratory is the second unit in the ore-dressing suite. It is equipped with flotation cells of the Hoover, Kraut and Kahlberg, Janney, Fahrenwald and Callow types, and laboratory pebble-grinding mills. These units are individually driven and the arrangement permits extensive study of the flotation process and its application to a specific milling problem.

In addition to this small testing equipment, the flotation testing laboratory contains a complete small scale flotation mill of one hundred pounds per hour capacity. This mill comprises a ball mill, an Aikens classifier, a Denver six cell and a special four cell flotation machine, conditioners, wet and dry reagent feeders and a small Wilfley type table. The arrangement is flexible and permits the development of any desired flow sheet to complete the testing of ores being studied in the laboratory.

A special chemical laboratory devoted to control-assaying of ore-dressing samples completes this suite. It is provided with a chemistry desk, balances, complete wet-assay equipment, hydrogen ion electrometers and colorimeters and a binocular ore-dressing microscope for rapid examination of ore-dressing samples.

The Ceramics Laboratory is equipped with the machinery necessary to instruct students in the methods of manufacturing brick, building and drain tile, floor tile, and other clay products. These products are made by students, burned in the department's kilns, and tested for quality. Equipment for casting clay slips and the manufacture of artware is available. A special laboratory is provided with the apparatus necessary for the preparation of glazes and their application to various types of clay ware. When necessary, special equipment may be provided for any research investigation of clay problems. The work of this laboratory covers a wide range of investigations. Recent research in lime mortars and other building materials has resulted in the design and erection of special equipment for the study.

The Physical Metallurgical Laboratory contains a 30″x18″ Hevi-Duty and a Hump furnace both on automatic control, and 35 K.V.A. high frequency induction furnace unit which supplies power to three induction melting furnaces, and a slag viscosity furnace of the concentric cylinder design operating under the Margules method. In addition there is a large Hoskins plate-type resistance furnace, a group of three resistance furnaces, one granular carbon and two nichrome resistance types, and a Hoskins muffle resistance furnace with automatic temperature control. The control panel for the Hoskins muffle furnace also supplies power to a small nichrome resistance furnace and several special heat-treating furnaces.

A Leeds and Northrup Potentiometer Recorder centrally located in this laboratory may be attached to any of these furnaces. The laboratory is well provided with optical and thermocouple pyrometers for temperature control work. Provision has been made for static and dynamic testing equipment to test metallurgical materials. The laboratory also contains a dilatometer.

THE X-RAY LABORATORY contains an air cooled, cold cathode (gas type) X-ray tube. It is used in the measurement of lattice parameters of metals and alloys. Data is obtained through the use of a back-deflection camera. This consists of a specimen holder as one end of the shaft of a synchronous motor which is mounted on carefully machined ways, and a film holder which is mounted on either or both sides of the collimating tube.

THE METALLURGICAL FURNACE LABORATORY equipment includes a single-phase Moore Electromelt tilting electric furnace of 250 pounds capacity, a copper and lead blast furnace, an acid and a basic lined converter, various oil- and gas-fired heat-treating furnaces, refining furnaces, gas- and oil-fired assay furnaces, an oil-fired down-draft brick kiln, a Stewart triple combination furnace, and a cone furnace. These are equipped with the necessary accessories for their operation.

THE METALLOGRAPHIC LABORATORY SUITE is furnished with a Leitz and a Bausch and Lomb micrometallograph, table metallurgical microscopes, copying and enlarging photographic equipment, and a complete dark-room equipment. In the polishing laboratory Warner-Swasey and Wilkens-Anderson polishing machines supplemented by provisions for hand polishing affords facilities for preparation of specimens. Various methods of mounting are provided, including a press for mounting small specimens in bakelite.

THE SAND TESTING LABORATORY contains a Dietert C.P. Universal Sand Testing Machine, a Standard A.F.A. permeability machine, a rammer, a compression balance with necessary accessories, and elutriators and standard screens for complete testing and grading of foundry sands.

THE PYROMETRIC STANDARDS LABORATORY. In this laboratory the department maintains both primary and secondary facilities for standardization of both optical and thermocouple pyrometers. A United States Bureau of Standards standardized optical pyrometer and platinum-rhodium thermocouple are used as standards.

THE ELECTROLYSIS LABORATORY is equipped with motor generator sets furnishing low and standard voltage currents, control panels, various types of electrolytic cells and electrical measurement equipment.

THE CHEMICAL LABORATORY contains the usual types of chemistry desks and hoods with an adjacent chemical store room. The balance room is equipped with chemical balances, and balances for gold and silver.

In each of the department's laboratories ample facilities are available for advanced study and research. The classrooms have provisions for visual instruction using slides or moving pictures, and one of them is equipped for experimental lectures with a special demonstration desk.

Several types of surface and underground mine structure models, a skeleton model of much of the Butte mining area, and various types of rock drills are displayed in the museum. The metallurgical exhibits include an extensive group of castings illustrating quality of product, gating, and the use of risers. Another series shows defects in castings. The collection of iron blast furnace slags with the operating data under which they were produced is probably the most complete in the United States.

COURSES IN MINING AND GEOLOGY

LEADING TO THE DEGREE OF BACHELOR OF SCIENCE (MINING ENGINEERING)

AND

COURSES IN METALLURGY

LEADING TO THE DEGREE OF BACHELOR OF SCIENCE (METALLURGICAL ENGINEERING)

FRESHMAN YEAR

First Semester	Credits	Second Semester	Credits
Math. 51—Elementary analysis	5	Math. 52—Elementary analysis	5
Drawing 1—Elements of drawing	3	Drawing 2—Elements of drawing	3
Chem. 2a—General chemistry	4	Chem. 2b—General chemistry	4
**Engl. 1a—Freshman composition	3	**Engl. 1b—Freshman composition	3
Shop. 1, 2—Elementary shopwork, or	2	Shop. 4, 5—Lathe work, planing, milling, or	2
Top. Engr. 108—Short course in surveying	(3)	Mining 12—Mine surveying	(2)
Freshman lectures	0	Freshman lectures	0
*Physical activity requirement		*Physical activity requirement	
	17-18		17

SOPHOMORE YEAR

Math. 54—Differential and integral calculus	4	Math. 55—Calculus	4
Physics 51—General physics	4	Physics 52—General physics	4
Mining 121—Assaying	5	Drawing 3—Descriptive geometry	3
Geol. 9—Engineering geology	3	Geol. 9—Engineering geology	3
Mining 101—Excavation and tunneling	3	Mining 122—Principles of metallurgy	5
	19		19

In order to prepare the student for specialized work in one of the three special fields—mining, metallurgy, or economic geology—three options are offered from which he may select his major and minor studies at the beginning of his junior year.

The major is to consist of 30-40 credits from one of the three groups listed below.

The minor is to consist of 15-20 credits from either other group. No minor studies may be selected from the major group.

MINING GROUP

Mining and Metallurgy 103, 104, 105, 106, 107, 109, 126, 210.
Railways 104, Structural Engr. 10, Steam and Gas Engr. 3 and 4.
Electrical Engr. 8 and 9, Hydraulics 1, Geology 114, 115, 151.
Economics 1a, 1b, 5, 137.

*All male freshmen are required to take Military Science, Physical Education, or Band. Those electing Military Science must take it for at least two years. Students completing the basic course in Military Science (four semesters) are granted four elective credits towards graduation. Students completing the advanced course in Military Science (four semesters) are granted eight additional elective credits towards graduation. Those who continue with Band will receive one credit per semester beginning with the sophomore year.

**Students who receive an "A" in English 1a may substitute a free elective for the three credits in English 1b.

METALLURGY GROUP

Mining and Metallurgy 109, 123, 124, 125, 126, 127, 128, 130, 131, 135, 140.
Structural Engr. 10, Steam and Gas Engr. 3 and 4, Electrical Engr. 8 and 9, Chemical Engr. 102, Economics 1a, 1b, 5, 137.

GEOLOGY GROUP

The courses in Geology; Mining and Metallurgy 103, 104, 107, 109, 124.

Typical junior and senior elections are shown below for each of the three options. These outlines are suggestive only and other courses may be carried within the general rule of major, minor, and free electives.

MINING OPTION

SUGGESTED SEQUENCE

JUNIOR YEAR

First Semester	Credits	Second Semester	Credits
Mech. 1, 2—Statics dynamics	5	Mech. 3—Mechanics of materials	5
Geol. 6—Mineralogy	5	Mech. 53—Materials of construction	2
Mining 103—Mining methods	3	Geol. 6—Mineralogy	5
†Geol. 114—Structural geology	5	Mining 103—Mining methods	3
*Mining 123—Metallurgy of copper, lead and zinc	5	*Mining 127—Hydrometallurgy	5
		†Geol. 151—Geology of mineral deposits	5
	18		20

Note:—†For students taking geology minor.
*For students taking metallurgy minor.

SENIOR YEAR

Min. 105—Mine engineering	3	Min. 104—Mineral valuation	3
Min. 107—Ore dressing	5	Min. 105—Mine engineering	3
Min. 109—Mine and smelter administration	4	Min. 130—Physical chemistry of the metals and minerals	3
Min. 124—Metallurgy of iron and steel	3	Mining 210—Adv. ore-dressing	3
Elect. Engr. 8—Electrical machinery	3	Elect. Engr. 9—Electrical machinery	3
Struct. Engr. 10—Structural design	2	Struct. Engr. 10—Structural design	2
	20		17

METALLURGY OPTION

SUGGESTED SEQUENCE

JUNIOR YEAR

Mech. 1, 2—Statics dynamics	5	Mech. 3—Mechanics of materials	5
Mining 123—Metallurgy of copper, lead and zinc	5	Mech. 53—Materials of construction	2
Mining 130—Physical chemistry of the metals and minerals	3	Mining 127—Hydrometallurgy	5
Mining 124—Metallurgy of iron and steel	3	Mining 128—Iron and steel lab.	3
Mining 135—Metallurgical calculations	3	Mining 130—Physical chemistry of the metals and minerals	3
		Elective	2
	19		20

SENIOR YEAR

First Semester	Credits	Second Semester	Credits
Mining 107—Ore dressing	5	Mining 104—Mineral valuation	3
Mining 109—Mine and smelter administration	4	Mining 125—Metallurgy of minor metals	2
Mining 140—Heat treatment of soft and medium steels	3	Mining 131—Foundry metallurgy	3
Mining 147—Alloy structures	3	Mining 148—X-Ray analysis	3
Elect. Engr. 8—Electrical machinery	3	Mining 210—Adv. ore dressing	3
		Elect. Engr. 9—Electrical machinery	3
		Electives	3
	18		20

GEOLOGY OPTION

SUGGESTED SEQUENCE

JUNIOR YEAR

Mech. 1, 2—Statics dynamics	5	Mech. 3—Mechanics of materials	5
Mining 103—Mining methods	3	Mech. 53—Materials of construction	2
Geol. 6—Mineralogy	5	Mining 103—Mining methods	3
Geol 114—Structural geology	5	Geol. 6—Mineralogy	5
Geol. 117—Pre-Cambrian geology	2	Geol. 151—Geology of the mineral deposits	5
	20		20

SENIOR YEAR

Mining 107—Ore dressing	5	Mining 104—Mineral valuation	3
Mining 124—Metallurgy of iron and steel	3	Min. 210—Adv. ore dressing	3
Geol. 108—Petrology	5	Geol. 108—Petrology	5
Geol. 117—Pre-Cambrian geology	2	Geol. 115—Metamorphic geology	5
Electives	5	Electives	4
	20		20

THE SIX-YEAR COURSES IN ENGINEERING AND LAW

Students who desire to obtain a training in the fundamental principles both of engineering and of law may, by pursuing the Engineering-Law Courses, qualify for the degree Bachelor of Science in Engineering at the end of four years, and for the degree Bachelor of Laws at the end of six years, including attendance at one ten-week summer session of the Law School.

To accomplish this:

1. The student will enroll in any one of the five engineering courses and will pursue the studies in this course for three years, electing during this three-year period at least six credits from the field of the social sciences. These credits should be elected from studies such as, Economics 1; History 4, 5, 117, 141; Philosophy 11; Political Science 1 or 101; Sociology 46, 139.

2. At the end of three years, the student will be admitted to the Law School, but to qualify for the degree Bachelor of Science in the appropriate engineering course at the end of this fourth year, he will devote approximately one-half of his time during the year to engineering subjects and the other half

Note:—Preferably at the end of the Junior Year all students in the department are required to take a six-week's trip, inspecting operations in important Mining and Metallurgical centers in this country.

to studies in the Law School. Thirteen credits in the Law School shall be taken as equivalent to nineteen credits in the College of Engineering in meeting the requirements of one hundred forty-six credits for graduation.

3. Enrollment in the Law School for two additional years and one summer session will meet all the time requirements for the degree Bachelor of Laws, with the exception of the six months' apprenticeship in a law office, or its equivalent. For a description of the courses in law, the credit requirements of which are not altered by this arrangement, the Bulletin of the Law School should be consulted.

ENGINEERING EXPERIMENT STATION

The Engineering Experiment Station of the College of Engineering was established by action of the Board of Regents, March 4, 1914. The members of the engineering faculty, together with fellows, scholars, and special assistants, devoting their time to research, constitute the members of the staff of the Experiment Station.

The purpose of this Experiment Station is the promotion of the engineering and industrial interests of the State by the scientific study of problems relating thereto as far as the facilities of the engineering laboratories will permit. So far as may be, the subjects for experimental study are selected with reference to their importance to the state of Wisconsin, although generally the problems are of wider interest and importance. The results of the research done in the past have appeared in part in papers before technical societies, and in part in the Engineering Series of the University Bulletin. Up to date 82 such bulletins and 57 reprints of technical papers have been published. A list of the bulletins may be had upon application to the University Editor.

In the field of hydraulic and sanitary engineering, bulletins are published from time to time giving results of studies of stream flow and other conditions affecting water supply and water power. Bulletins are also issued giving the results of experimental studies with the laboratory apparatus for the measurements of flow of water, and the losses which occur when water flows through pipes and other passages. Investigations now in progress include a study of the speed of travel of pressure waves in cement-asbestos (transite) pipes, model studies of spillways of dams and of erosion below dams, tests of large central air line air-lift pumps, the relief from water hammer pressure caused by closure of valves, the coefficients of discharge of standard rectangular and triangular weirs, hydraulic characteristics of models of soil erosion control structures, studies of the performance of different types of rotary pumps and an investigation of the hydraulics and pneumatics of the plumbing system including cross-connections, improvements in methods of heating and distributing hot water, and efficiency of grease traps.

In the sanitary field, studies are being made on the purification actually effected by modern sewage disposal plants. In cooperation with the State Board of Health, investigations are being made of the treatment of several trade wastes. Research is in progress on a sludge digestion and a new theory of the mechanism of the Activated Sludge process by conducting experiments in the laboratory and at sewage plants located in southern Wisconsin.

In the Materials Testing Laboratory, tests on the durability and other properties of cement and concrete, on vibratory methods of placing concrete, and tests on mortars for reinforced brick masonry are being made. Fatigue tests on overstressing and understressing gray iron, and various carbon steels are being carried out. Tests on metal specimens, plaster models, and photoelastic tests on bakelite models are being made to determine the effect of form and scale on the strength of machine parts and other members of irregular form. Tests are also in progress to determine the properties of new types of steel.

The Steam and Gas Department of Mechanical Engineering has published information relating to the heat insulating properties of commercial pipe coverings, the economical combustion of soft coal, the Pitot tube as an instrument for measuring the flow of gases, and a number of bulletins covering heating and ventilating subjects. These papers cover the study of recirculation of washed air for ventilating purposes, complete engineering service data for a large hospital, and the infiltration of air into buildings through windows and through various types of wall construction. The infiltration work was carried on in cooperation with American Society of Heating and Ventilating Engineers. Recent reprints cover such subjects as the investigation of air outlets in classroom ventilation, a study of temperature gradients in a large heated space, methods of heating an industrial type of building, and oil burning in residences. Internal combustion engine fuels and lubricants have been covered in a bulletin of information on gasoline and lubricating oil for automobiles. Several papers have been prepared on the subject of fuel oil and its behavior during combustion in high speed Diesel engines.

In the Department of Electrical Engineering the results have been published of experimental and analytical studies pertaining to subjects such as the following: the radiating and receiving properties of radio antennas, the theory of electric networks and vacuum tube circuits, an electrical recorder for mechanical strains, electrical methods of geophysical exploration, the nature of the losses and the failures in insulating materials, electrical methods of heating for welding operations, the starting properties of electric motors, the properties and the design of transformers, motors, meters, insulators, etc.

A Standards Laboratory is operated in connection with the work of the Wisconsin Public Service Commission and the State at large, testing and standardizing electrical metering devices of all kinds. Through this laboratory, the facilities of the Electrical Laboratory have been made available to the industries of the State for tests and investigations which require the use of instruments not ordinarily possessed by the industries. The following tests indicate the nature of the work conducted for the industries: oscillograph tests of magnetos, ignition coils and circuit breakers, acceptance test of transformers for ratio, regulation and efficiency, certification of ratio and phase angle of instrument transformers, tests on insulators, insulating materials, cables, electric household appliances, tests of lamps and magnetic materials.

In the Chemical Engineering Department two recent bulletins of importance have been issued: one on the transfer of heat in tubular condensers and the other on the transfer coefficients of ammonia in packed absorption towers. The published reports on the corrosion of metals, the electroplating with nickel and with chromium are numerous. In addition there are publications of researches on the mechanism of case hardening of steel using inorganic energizers, catalysts for the reduction of iron ores, the microscopy of textile fibers, the chemical kinetics of de-gumming textiles, the methods of analysis of the cooking liquor for Kraft pulp, the space required for the combination of gas in luminous flames, the methods for measuring the specific gravity of gas, the aeration of gas burners, the drying of granular solids, and the flow of viscous liquids through thin-plate orifices in pipe lines.

Research is being carried on in the field of Mining and Metallurgy by that department. The treatment of zinc ores by flotation concentration methods and electrolytic recovery methods, developed in our laboratories, offers considerable economic possibilities in the treatment of low grade ores with higher recoveries than are now possible. The constitution and physical properties of iron blast furnace slags are being studied. With the assistance of different groups of foundries in Wisconsin, research on the properties of gray cast iron, and the manufacture of pearlitic iron have been instituted. From time to time

the department cooperates with individual enterprises in studies of the special problems which their work develops.

For further information regarding the Engineering Experiment Station, address F. ELLIS JOHNSON, *Director.*

DEPARTMENTS OF INSTRUCTION

Abbreviations used in the announcement of courses:

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

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

The unit of reckoning the credit is one hour of classroom work per week. Two hours of drawing, laboratory, field, or shop work (which require little outside preparation) count as one hour of classroom work.

AERONAUTICS

Raymond Jefferson Roark, M.S., C.E., *Professor of Mechanics*
Leroy Alonzo Wilson, M.E., M.M.E., *Associate Professor of Steam and Gas Engineering*
Grover C. Wilson, M.S., M.E., *Associate Professor of Steam and Gas Engineering*
Eric Rexford Miller, M.S., *Lecturer in Meteorology*
Richard Scheunemann Hartenberg, M.S., *Instructor in Mechanics*
Charles Frederick Peters, *Instructor in Mechanical Practice*
Robert Nicholas Schumann, *Instructor in Mechanical Practice*

101. Aerodynamics. I; 3 cr. The wind tunnel, properties of airfoils and of combinations, and parasitic resistance; also airplane controls and propellers; stability and performance. Prerequisite: Mechanics 2. (Will not be given for fewer than eight students, who must signify their intention of completing the option.) Mr. Hartenberg.

102. Airplane Stress Analysis. II; 3 cr. Stress analysis of airplane structures with special reference to Department of Commerce requirements. Prerequisites: Aeronautics 101 and Mechanics 3. Mr. Roark.

103. Design of Airplane Parts. I; 2 cr. Design of spars, struts and other structural elements. Aircraft materials. Prerequisite: Aeronautics 102. Mr. Roark.

104. Propeller Theory. II; 2 cr. Theories of propeller performance; practical methods of design. Prerequisite: Aeronautics 101. Mr. Hartenberg.

108. Welding. I, II; 2 cr. Arc and gas welding, with special reference to aircraft construction. Lab. fee $6.00. Mr. Peters, Mr. Schumann.

109. Airplane Engines. I; 2 cr. Fundamental principles of aircraft engine

construction, operation, and maintenance. Characteristics of gasoline and lubricating oils. Study of modern engines, carburetors, ignition systems, starters, and superchargers. Prerequisite: Steam and Gas 1 or 3. Mr. L. A. Wilson.

110. AERONAUTICAL METEOROLOGY. II; 1 cr. Prerequisite: Junior standing. Mr. Miller.

130. AIRPLANE ENGINE TESTING. II; 2 cr. Prerequisite: Beginning course in Steam and Gas laboratory. Lab. fee $6.00. Mr. G. C. Wilson.

CHEMICAL ENGINEERING

OTTO LOUIS KOWALKE, Ch.E., *Professor of Chemical Engineering, Chairman*
OLAF ANDREAS HOUGEN, Ph.D., *Professor of Chemical Engineering*
ROLAND ANDREW RAGATZ, Ph.D., *Associate Professor of Chemical Engineering*
ROGER JOHN ALTPETER, Ph.D., *Assistant Professor of Chemical Engineering*
ALOIS JOHN KROMBHOLZ, Ph.D., *Assistant Professor of Chemical Engineering*
WAYNE KENNETH NEILL, M.S., *Instructor in Chemical Engineering*
DONALD HARVEY GORDON, B.S., *Instructor in Chemical Engineering*
HERMAN FREDERICK HOERIG, B.S., *Instructor in Chemical Engineering*
WILLIAM ALLEN BAIN, JR., M.S., *Instructor in Chemical Engineering*

8. METALLOGRAPHY FOR MECHANICAL ENGINEERS. II; 2 cr. The microscopic examination of the structure of steels used for cutting metals; metals suited to machine tool construction, as affected by heat treatment. Not open to chemical engineers. Lab. fee $6.00; deposit $1.00. Mr. Ragatz, Mr. Krombholz, Mr. Gordon.

12 TECHNICAL EXAMINATION OF FUELS, GASES, AND WATER. I, II; 2 cr. Recitations and laboratory work together with reports on the interpretation of experimental results. Prerequisites: Chemistry 11 or 14, Physics 1 or 51. Lab. fee $6.00; deposit $2.00. Mr. Hoerig, Mr. Bain, Mr. Neill.

15. INDUSTRIAL CHEMISTRY. I; 3 cr. II; 2 cr. Lectures and recitations in the technology of important chemical industries. Prerequisite: Chemistry 120 or concurrent enrollment. For Letters and Science chemistry majors. Mr. Altpeter.

18. FUNDAMENTALS OF CHEMICAL ENGINEERING. I, II; 2 cr. The applications of the laws of stoichiometry, gases, vapors, and solubilities to problems in chemical industries. Prerequisites: Math. 52, Chemistry 11 or 14. Mr. Ragatz, Mr. Neill, Mr. Hoerig.

20. INDUSTRIAL CHEMISTRY. I; 3 cr. Lectures and recitations on the chemical, engineering, and economic aspects of selected chemical industries. Prerequisites: Chemistry 2a, and Chemistry 120 or its concurrent registration. Mr. Kowalke and staff.

101. APPLIED ELECTROCHEMISTRY. I; 4 cr. The laws and principles of electrolysis, with their applications to electroplating, the refining of metals, and electrochemical manufacture. Lab. fee $6.00. Mr. Krombholz, Mr. Neill.

102. ELECTRIC FURNACES. Yr; 3 cr. Recitation, two hours: on the construction, operation, and products of electric furnaces. Laboratory practice, four hours: melting steel; making calcium carbide, carborundum, and alloys. Lab. fee $8.00. Given when demand warrants. Mr. Ragatz.

111. MANUFACTURING OPERATIONS. II; 4 cr. Lectures, recitations, and reports on fundamental principles of sizing, mechanical separation of materials, evaporation and drying, filtration, distillation, flow of fluids, etc., and the effective arrangements of and suitable materials for constructing appliances to carry out these operations. Prerequisites: Mathematics 55, Steam and Gas 5, Chem. Engr. 18. Mr. Kowalke, Mr. Altpeter.

113. GAS MANUFACTURE AND DISTRIBUTION. I; 2 cr. Lectures and recitations on technology of gas for domestic and industrial heating and on problems of distribution. Prerequisite: Senior standing. Mr. Kowalke.

114. CHEMICAL MANUFACTURE. 4 cr. Laboratory practice supplementary to course 111; efficiency test on unit operations, manufacture of chemical products, recovery of products from waste materials. Prerequisites: Chemistry 14, Chem. Engr. 111. Required for chemical engineers as summer work; elective for other students. Lab. fee $12.00. Mr. Kowalke and staff.

115. INDUSTRIAL ORGANIC PROCESSES. II; 3 cr. Lectures and recitations and problems on the quantitative applications of organic chemistry. Prerequisites: Chem. Engr. 111, Chemistry 120. For students in Chemical Engineering and for graduates. Mr. Kowalke.

116. THERMAL PROCESSES. II; 4 cr. Application of the principles of thermophysics and physical chemistry to the solution of problems in the thermal process in chemical industries. Mr. Hougen.

117. CHEMICAL ENGINEERING MEASUREMENTS. I; 3 cr. Recitations and laboratory practice in temperature measurements and control, liquid composition control, fluid pressure measurement, etc. Prerequisites: Physics 52, Chem. Engr. 18. Lab. fee $6.00. Mr. Ragatz and staff.

118. CHEMICAL ENGINEERING THERMODYNAMICS. II; 3 cr. Recitations and problems on the application of the classical, the chemical, and the chemical engineering thermodynamics to operations in the chemical industries. Mr. Hougen.

119. METALLOGRAPHY. I; 3 cr. Lectures and laboratory instruction in the microscopic examination and microphotography of iron, steel (including special steels), brasses, bearing metals, and other technical alloys, and the effect of heat and mechanical treatment together with the theories of solidification and constitution of these materials. Prerequisites: General Chemistry and Physics 1 or 51. Lab. fee $6.00; deposit $1.00. Mr. Ragatz. Mr. Krombholz, Mr. Gordon.

121. CHEMICAL PLANT PROJECTS. II; 3 cr. Recitations and drawing room practice in laying out processes, choice of materials of construction, calculations of sizes of tanks, piping, machinery needed, etc. Mr. Hougen, Mr. Kowalke.

122. SPECIAL PROBLEMS. II; 4 cr. One or more assigned problems involving greater opportunity for independent effort than is possible in the usual laboratory exercise. A detailed typewritten report is required on each project. Prerequisites: Chem. Engr. 101, 111, 117, 119. Lab. fee $9.00. Staff.

124. INDUSTRIAL MICROSCOPY. I; 3 cr. Lectures and laboratory work on micrometry and the microscopic and microchemical examination of selected

industrial products. Prerequisites: Chemistry 120, Physics 51. Lab. fee $7.00. Mr. Altpeter.

126. METALLOGRAPHY OF ALLOY STEELS. II; 2 cr. Prerequisite: Chem. Engr. 119. Mr. Ragatz.

128. ADVANCED METALLOGRAPHIC TECHNIQUE. II; 1 cr. Prerequisite: Chem. Engr. 119. Lab. fee $3.00. Mr. Ragatz.

129. ADVANCED ELECTROCHEMISTRY. II; 2 cr. The application of electrochemical principles to the refining of metals and their recovery from ores by electrolysis. Mr. Krombholz.

130. HEAT TRANSMISSION. II; 2 cr. Advanced studies of the theories of heat transmission by conduction, convection and radiation in moving liquids, vapors and gases, and their applications to the design of equipment. Prerequisite: S. & G. 1 or 3. Mr. Hougen.

180. ADVANCED INDEPENDENT STUDIES. Yr; 1-3 cr. Reading and conferences on assigned subjects. Mr. Kowalke, Mr. Hougen, Mr. Ragatz.

200. RESEARCH. * cr. Assigned experimental and library investigation together with conferences and written reports. Lab. fee $3.00 per credit. Mr. Kowalke, Mr. Hougen, Mr. Ragatz, Mr. Krombholz, Mr. Altpeter.

231. SEMINAR. Yr; 2 cr. The presentation and discussion of papers dealing with various problems in chemical engineering. Mr. Kowalke.

232. CORROSION. II; 2 cr. Reading course. Hours to be arranged. Mr. Krombholz.

280. ADVANCED INDEPENDENT STUDY. I, II; * cr. See page 244. Staff.

CITY PLANNING

(See Highway Engineering and City Planning, page 285)

DRAWING

HERBERT DENNEY ORTH, B.S., *Professor of Drawing and Descriptive Geometry, Chairman*
ADAM VAUSE MILLAR, M.S., *Professor of Drawing and Descriptive Geometry*
HOWARD BAILEY DOKE, *Assistant Professor of Drawing and Descriptive Geometry.*
JOSEPH DOW LIVERMORE, B.S., *Assistant Professor of Drawing and Descriptive Geometry*
KENNETH GRINNELL SHIELS, M.S., *Assistant Professor of Drawing and Descriptive Geometry*
FULLER ORVILLE GRIFFITH, B.S., *Instructor in Drawing and Descriptive Geometry*
LLOYD WILLARD JEDEKA, B.S., *Instructor in Drawing and Descriptive Geometry*
JOSEPH JOHN PEOT, B.S., *Instructor in Drawing and Descriptive Geometry*
GORDON JEROME STREWLER, B.S., *Instructor in Drawing and Descriptive Geometry*
ROBERT ROCKWOOD WORSENCROFT, B.S., *Instructor in Drawing and Descriptive Geometry*

1. ELEMENTS OF DRAWING. I, II; 3 cr. Working drawings; third angle projection, lettering, tracing, isometric, and cabinet drawing. Orth, Doke, and Worsencroft's *Mechanical Drawing.* Lab. fee $1.00. Mr. Orth and staff.

2. Elements of Drawing. I, II; 3 cr. Working drawings, lettering, sketching, tracing and blueprinting. Orth, Doke, and Worsencroft's *Mechanical Drawing*. Prerequisite: Drawing 1. Lab. fee $1.00. Mr. Orth and staff.

3. Descriptive Geometry. I, II; 3 cr. Fundamental theory of point, line and plane, with application to solids. Generation and classification of lines and surfaces; tangent planes; sections, intersections and developments. Millar, Maclin, Markwardt, and Shiels' *Descriptive Geometry*. Prerequisite: Drawing 2. Mr. Millar, Mr. Shiels, and staff.

7. Freehand Lettering. I, II; 1 or 2 cr. Construction and composition of Classic Roman capitals, "lower case" letters, English Gothic, black letter, and modern script. Special emphasis given to the choice of lettering styles in advertising design. Prerequisite: Drawing 1. Lab. fee $.75. Mr. Doke.

8. Advanced Freehand Lettering. I, II; 2 cr. Continuation of Course 7, which is prerequisite. Lab. fee $.75. Mr. Doke.

9. Advanced Freehand Lettering. I, II; 1 or 2 cr. Continuation of 8, which is prerequisite. Lab. fee $.75. Mr. Doke.

ELECTRICAL ENGINEERING

Edward Bennett, E.E., *Professor of Electrical Engineering, Chairman*
Cyril Methodius Jansky, B.A., B.S., *Professor of Electrical Engineering*
John Reese Price, B.S., *Professor of Electrical Engineering*
James Webster Watson, B.S., *Professor of Electrical Engineering*
Edmund Dale Ayres, M.S., *Associate Professor of Engineering Economics*
Gordon Frederick Tracy, M.S., *Associate Professor of Electrical Engineering*
Reginald Ralph Benedict, M.S., *Assistant Professor of Electrical Engineering*
Royce Everett Johnson, E.E., *Assistant Professor of Electrical Engineering*
Leslie Erskine Allen Kelso, B.S., *Assistant Professor of Electrical Engineering*
Glenn Koehler, M.S., *Assistant Professor of Electrical Engineering*
Ludvig Conrad Larson, E.E., *Assistant Professor of Electrical Engineering*
James R. Eaton, M.S., *Instructor in Electrical Engineering*
Henry Joseph Kubiak, B.S., *Instructor in Electrical Engineering*
Frederick Austin Maxfield, Ph.D., *Instructor in Electrical Engineering*

1. Fundamentals of Electrodynamics. I, II; 4 cr. An introductory course for sophomore electrical engineers dealing with the derivation and application of the basic ideas and laws relating to electrostatic and electromagnetic phenomena. Open to students of other colleges. Prerequisites: Physics 53 and Math. 54. Mr. Benedict, Mr. Larson, Mr. Kubiak.

2. Direct Current Machinery. I, II; 4 cr. A continuation of E.E. 1. Construction and operation of direct current machinery. Prerequisite: E.E. 1. Mr. Watson, Mr. Benedict, Mr. Larson.

3. Alternating Current Theory. I, II; 4 cr. Single phase and polyphase circuits. Prerequisite: E.E. 2. Lab. fee $3.00. Mr. Price, Mr. Watson, Mr. Tracy.

4. Alternating Current Machinery. I, II; 4 cr. Transformers, induction motors, synchronous converters. A continuation of E.E. 3. Mr. Price, Mr. Watson, Mr. Tracy.

6. ELECTRICAL MACHINERY. II; 3 cr. Deals with the laws of the electric and magnetic circuit and the characteristics of direct current machinery. Primarily for mechanical engineers. Prerequisite: Physics 52. Mr. Kelso, Mr. Watson.

7. ELECTRICAL MACHINERY. I; 3 cr. Alternating current theory and machinery. Primarily for mechanical engineers. Prerequisite: E.E. 6. Mr. Kelso, Mr. Watson.

8. ELECTRICAL MACHINERY. I; 3 cr. Laws of the electric and magnetic circuit and the characteristics of direct current machinery. Primarily for mining and chemical engineers. Prerequisite: Physics 52. Lab. fee $3.00. Mr. Tracy, Mr. Larson

9. ELECTRICAL MACHINERY. II; 3 cr. Alternating current theory and machinery. Primarily for mining and chemical engineers. Prerequisite: E.E. 8. Lab. fee $3.00 Mr. Tracy, Mr. Larson.

10. DIRECT CURRENT MACHINERY. II; 3 cr. Primarily for civil engineers. Mr. Jansky, Mr. Larson.

25. ENGINEERING PAPERS. I, II; 2 cr. Preparation and presentation of technical papers. Open to engineering seniors. Mr. Jansky.

104. ELECTRIC MACHINE DESIGN. II; 3 cr. Individual design of a direct or an alternating current machine. Prerequisite: E.E. 2. Given when demand warrants. Mr. Watson.

112. ELECTRICAL CONDUCTION IN GASES. I, II; 4 cr. Treats of the underlying phenomena occurring in devices and apparatus in which electricity passes through gaseous conductors or evacuated vessels. With laboratory work. Prerequisite: E.E. 2 or Physics 52 or 55. Lab. fee $3.00. Mr. Benedict, Mr. Maxfield.

116. ELECTRIC CIRCUITS. I; 3 cr. Analytical and oscillograph study of starting currents of transformers and transmission lines, short circuit currents of alternators, generation of radio frequencies, distribution of current and voltage in loaded and unloaded telephone lines. Prerequisite: E.E. 3. Lab. fee $3.00. Mr. Bennett, Mr. Benedict.

120. INSULATION AND HIGH TENSION TESTING. II; 3 cr. Dielectric theory. Properties and laboratory tests of insulators and insulating materials. Prerequisite: E.E. 3. Lab. fee $3.00. Mr. Bennett, Mr. Benedict.

122. ELECTRIC METERS. II; 3 cr. Analytical study of instruments; methods of calibration and measurement; watthour meters and their application; instrument transformers; and relays. Laboratory work in Electrical Standards Laboratory. Prerequisite: E.E. 3. Lab. fee $3.00. Mr. Johnson.

127. ELECTRICAL CENTRAL STATIONS. II; 3 cr. Central station design: technical and economical choice and arrangement of electrical equipment. Power system costs: investment and operating costs, rate analysis. Prerequisite: E.E. 3. Mr. Ayres.

133. ILLUMINATION AND PHOTOMETRY. I; 3 cr. Commercial illuminants and their applications to lighting. Design of illuminating systems. Lectures and laboratory work. Lab. fee $3.00. Mr. Johnson.

137. Power Distribution. I; 3 cr. Power distribution design: technical and economic design of overhead and underground distribution systems; transmission line design and operation. Prerequisite: E.E. 3. Mr. Ayres.

154. Elements of Radio Communication. I; 3 cr. The properties of circuits and devices used in radio communication. With laboratory work. Prerequisite: E.E. 3 or senior standing in physics. Lab. fee $3.00. Mr. Koehler.

155. Thermionic Vacuum Tube Circuits. I; 3 cr. An experimental and analytical study of the properties of amplifier and oscillator circuits and of the performance of the thermionic vacuum tube in telephone and radio networks. With laboratory work. Prerequisite: E.E. 3 or senior standing in physics. Lab. fee $3.00. Mr. Koehler.

156. Elements of Wire Communication. II; 3 cr. Theory of telephone and telegraph instruments and circuits. The theory of the long line. With laboratory work. Prerequisite: E.E. 3 or senior standing in physics. Lab. fee $3.00. Mr. Koehler.

157. Radio Circuit Analysis and Design. II; 3 cr. A continuation of E.E. 155. Treating of such topics as: amplifiers and their design, operation of triode oscillators in parallel, the design of triode oscillators, modulation and demodulation, analysis and design of radio transmitting and radio receiving sets, elementary radiation theory, partial analysis of a complete radio communication system. With laboratory work. Prerequisite: E.E. 155. Lab. fee $3.00. Mr. Koehler.

180. Advanced Independent Study. I, II; *cr. See page 244. Staff.

213. Electric Machine Theory. II; 3 cr. Analytical treatment of the behavior of three-phase induction motors and transformers under unbalanced conditions; calculation of the rotating m.m.f. of a symmetrical three-phase winding; sub-synchronous phenomena in synchronous machines; and heat losses in conductors located in deep slots. Prerequisite: E.E. 4. Mr. Tracy.

214. Advanced Dynamo Laboratory. II; 3 cr. Advanced laboratory tests with direct and alternating current machinery. Prerequisites: E.E. 54 and 4. Lab. fee $6.00. Mr. Price.

231. Transmission and Distribution of Power. Yr; 3 cr. This course deals with the following features of the transmission and distribution of electrical energy: general economic features of electrical transmission, the constants of the transmission line and apparatus, derivations of equations of the transmission line, abnormal potentials and lightning arresters, installing material, and line insulators, line construction, relays and automatic sectionalizing. Given when demand warrants. Mr. Bennett.

232. Advanced Theory of Electric Circuits. Yr; 3 cr. This course treats of the following aspects of the theory of electric circuit phenomena: the investigation of the transient phenomena occurring when the conditions in simple and coupled circuits are suddenly changed; the oscillations or surges set up in transmission and cable systems by grounding and switching operations; traveling and stationary waves in transmission and telephone lines; current and magnetic flux distribution at high frequencies. The analytical work is supplemented by experimental work with the oscillograph. Lab. fee $3.00. Mr. Bennett, Mr. Benedict.

233. SEMINAR IN ELECTRIC CIRCUIT THEORY. Yr; 3 cr. This course is a further development of the topics listed under E.E. 232 and in addition treats the following subjects: electromagnetic radiation, electric wave filters in the steady and transient state, the selective properties of circuits and filter networks to impulse excitation, the development and application of the Heaviside-Carson expansion formula and other advanced analytical methods of treating the phenomena which take place in electrical networks in the transient state. Prerequisite: E.E. 232. Given when demand warrants. Mr. Bennett.

280. ADVANCED INDEPENDENT STUDY. I, II; *cr. See page 244. Staff.

SIGNAL CORPS COURSE. Electrical engineers who enroll in the Signal Corps unit of the Reserve Officers' Training Corps are required to take two 3-credit courses which must be selected from the following group: E.E. 116, 154, 155, 156, 157, 232. Men who enroll in this unit, after satisfactorily completing the course and meeting the military requirements, may be commissioned in the Officers' Reserve Corps if they so desire.

DYNAMO LABORATORY COURSES

Mr. Price and Laboratory Instructors

51. ELECTRODYNAMICS LABORATORY. I, II; 2 cr. Basic electrostatic and electromagnetic experiments and measurements. To accompany E.E. 1. Lab. fee $6.00.

52. DYNAMO LABORATORY. I or II; 2 cr. Tests of direct current dynamos and appliances. To accompany E.E. 2. Lab. fee $6.00.

54. ALTERNATING CURRENT LABORATORY. I, II; 2 cr. Tests of A. C. generators and motors, transformers, converters, and induction motors. To accompany E.E. 4. Lab. fee $6.00.

56. DIRECT CURRENT LABORATORY. II; 2 cr. For mechanical engineers. To accompany E.E. 6. Lab. fee $6.00.

57. ALTERNATING CURRENT LABORATORY. I; 2 cr. Primarily for mechanical engineers. Prerequisite: E.E. 7. Lab. fee $6.00.

60. DIRECT CURRENT LABORATORY. II; 1 cr. To accompany E.E. 10. Lab. fee $3.00.

ENGINEERING CONTRACTS AND SPECIFICATIONS

LEWIS HANFORD KESSLER, M.S., C.E., *Associate Professor of Hydraulic and Sanitary Engineering*

101. CONTRACTS AND SPECIFICATIONS. I; 2 cr. Engineering relations, legal, contractual and personal preparation of contracts, specifications, and other engineering papers.

ENGINEERING ECONOMICS

EDMUND DALE AYRES, M.S., *Associate Professor of Engineering Economics, Chairman*

LESLIE FLANDERS VAN HAGAN, C.E., *Professor of Railway Engineering*

PATRICK HENRY HYLAND, M.E., *Associate Professor of Machine Design*
JAMES WILBUR MCNAUL, B.S., *Assistant Professor of Machine Design*

101. ENGINEERING BUSINESS. I, II; 3 cr. This course is intended to provide basic elementary study for the engineering student in the fields of accounting, business organization, and corporation finance. Prerequisite: Sophomore standing. Mr. Ayres.

102. ECONOMICS OF ENGINEERING. I, II; 3 cr. Application of economic analysis to the problems of engineering and industry: Estimates, valuation, economic selection, economics of production and distribution. Administration of engineering and industrial enterprise. Reports, planning and supervision, budgets, administrative control and human relations. Prerequisite: Sophomore standing. Mr. Ayres.

103. ECONOMIC SELECTION. (Formerly Ry. Engr. 105, Engineering Economics.) I; 2 cr. The theory underlying the economic selection of materials of construction, methods of doing work, and types of structures. Elective for junior and senior engineers. Mr. Van Hagan.

105. MANUFACTURING AND PRODUCTION METHODS. I; 2 cr. Factory and shop administration and management; production scheduling and planning; dispatching and manufacturing methods. A general survey of the most suitable material, special tools and fundamental processes of manufacturing, together with the relations of the allied departments of pattern shop, foundry and machine shops. Prerequisite: Senior standing. Mr. McNaul.

106. POWER PLANT ECONOMICS AND DESIGN. II; 3 cr. Load curves, principles underlying the selection of power units; power plant layout, building design, equipment selection, estimates, operating charges, fixed charges, etc. Drawing room design and estimate of small power plant. Prerequisite: Senior standing. Mr. Hyland.

107. SEMINAR. (Formerly Engr. Admin. 103.) I, II; 2 cr. Investigations of engineering problems reaching into the fields of business, economics, and sociology. Work is carried on through review of outstanding contributions in the field of engineering economics and through the organization of investigative work. Prerequisite: Senior or graduate standing. Mr. Ayres.

180. ADVANCED INDEPENDENT STUDY. I, II; *cr. See page 244. Staff.

ENGINEERING ENGLISH AND ENGINEERING JOURNALISM

LESLIE FLANDERS VAN HAGAN, C.E., *Professor of Railway Engineering*

1a. ENGINEERING ENGLISH. I; 1 cr. To supplement the English work of the freshman year and to assist in maintaining standards in speech and writing throughout the last two years of the engineering course. Prerequisite: English 1b.

1b. ENGINEERING ENGLISH. II; 1 cr. Follows course 1a.

2a. ENGINEERING ENGLISH. I; 1 cr. Follows course 1b.

2b. ENGINEERING ENGLISH. II; 1 cr. Follows course 2a.

10. ENGINEERING JOURNALISM. I, II; 1 cr. Editing and managing a technical magazine.

HIGHWAY ENGINEERING AND CITY PLANNING

HAROLD FREDERICK JANDA, C.E., *Professor of Highway Engineering and City Planning, Chairman*
JOSEPH ZAPATA, B.S., *Lecturer in Highway Engineering*

HIGHWAY ENGINEERING

102. HIGHWAY ENGINEERING. II; 3 cr. Economics; traffic census; drainage; construction and maintenance methods of the various types of road surfaces. Prerequisite: Railway Engr. 1. Mr. Janda.

103. ADVANCED HIGHWAY DESIGN. I; 3 cr. Special problems of an advanced nature in the construction of the modern highway. Prerequisite: Highway Engr. 102 or its equivalent. Mr. Janda.

104. HIGHWAY MATERIALS TESTING. II; 3 cr. The testing of bituminous and non-bituminous road materials. Prerequisite: Highway Engr. 102. Lab. fee $6.00. Mr. Janda, Mr. Zapata.

105. HIGHWAY MAINTENANCE. I; 2 cr. Equipment depots; maintenance machinery; shoulder and ditch maintenance; methods of surface maintenance; snow-drift prevention and removal; etc. Prerequisite: Highway Engr. 102. Mr. Janda.

106. HIGHWAY ENGINEERING. I; 3 cr. Individual problems in highway engineering. Prerequisite: Highway Engr. 102. Given when demand warrants. Mr. Janda.

CITY PLANNING*

101. CITY PLANNING. I, II; 2 cr. Growth of cities; land subdivision; classes and uses of streets; zoning; parks and playgrounds; regional planning. Mr. Janda.

104. MUNICIPAL ENGINEERING PRACTICE. I; 2 cr. Width and arrangement of streets; curb and gutter; sidewalks; street surface details; crowns and intersections; landing fields; trees and shrubs. Prerequisite: Topographic Engr. 103. Mr. Janda.

105. TRAFFIC CONTROL. II; 2 cr. Street systems; causes of accidents; parking; traffic signals; ordinances; administration. Prerequisite: Junior standing. Mr. Janda.

HYDRAULIC AND SANITARY ENGINEERINING

JAMES GELSTON WOODBURN, M.A., Ph.D., *Professor of Hydraulic Engineering, Chairman*
LEWIS HANFORD KESSLER, M.S., C.E., *Associate Professor of Hydraulic and Sanitary Engineering*
MERLE STARR NICHOLS, Ph.D., *Assistant Professor of Sanitary Chemistry*
ARNO THOMAS LENZ, M.S., *Assistant Professor of Hydraulic Engineering*
GRAHAM WALTON, M.S., *Instructor in Hydraulic and Sanitary Engineering*
ELDON RAYMOND DODGE, M.S., *Instructor in Hydraulic and Sanitary Engineering*

*Students desiring work in planning and planting of public grounds, parks, and home grounds, see courses in Horticulture, College of Agriculture.

1. HYDRAULICS. I, II; 3 cr. The elementary principles of engineering hydraulics, and the theory, calibration and use of instruments for hydraulic measurements. Required of junior mechanical and senior electrical engineering students. Recitations, lectures, and laboratory work. Prerequisites: Mechanics 1, 2. Lab. fee $2.00. Mr. Woodburn, Mr. Kessler, Mr. Lenz, Mr. Walton, Mr. Dodge.

2. HYDRAULICS. I, II; 4 cr. Similar to course 1, but having additional recitation and laboratory work. Required of junior civil engineering students. Prerequisites: Mechanics 1, 2. Lab. fee $3.00. Mr. Woodburn, Mr. Kessler, Mr. Lenz, Mr. Walton, Mr. Dodge.

102. TESTING OF HYDRAULIC MACHINES. I, II; 2 cr. Methods of hydraulic machine testing. Tests are made of water wheels, centrifugal and reciprocating pumps, hydraulic rams, air lift pumps, etc. Laboratory work with occasional lectures and computing periods. Prerequisite: Hydr. 1 or 2. Lab. fee $4.00. Mr. Lenz, Mr. Walton.

104. WATER POWER ENGINEERING. I; 3 cr. The theory, investigation and development of water power. Prerequisite: Hydr. 1 or 2. Mr. Lenz.

105. HYDRAULIC MACHINERY. II; 2 cr. The theory of hydraulic motors, pumps, etc., and their economic selection and installation. Prerequisite: Hydr. 1 or 2. Mr. Lenz, Mr. Walton.

110. HYDROLOGY. I; 2 cr. Water in its physical, geological, and meteorological relations as applied to water power, water supply, irrigation, drainage, soil erosion, and sanitary engineering. Mr. Woodburn, Mr. Walton.

112. RIVER AND IRRIGATION HYDRAULICS. II; 2 cr. Theory of model experiments on river work. Uniform and non-uniform flow in natural and artificial open channels. Duty of water on irrigated lands. Prerequisites: Hydr. 1 or 2. Mr. Woodburn.

113. HYDROLOGICAL INVESTIGATIONS. I; 2 cr. Investigation of water supply for power, irrigation, soil conservation, or municipal purposes. Prerequisite : Hydr. 1 or 2. Mr. Lenz.

114. HYDRAULIC DESIGN. Design of hydraulic features of water-power plant based on hydrological investigations of Hydr. 113. II; 2 cr. Prerequisite: Hydr. 1 or 2. Mr. Kessler, Mr. Lenz.

115. ADVANCED HYDRAULICS. I; 2 cr. Special problems of flow of liquids in pipes and open channels of uniform and non-uniform cross section; flow of air and gas; forces exerted by fluids. Prerequisite: Hydr. 1 or 2. Mr. Woodburn.

116. SANITARY ENGINEERING. I; 2 cr. The design of piping for water supply to, and drainage from, buildings. Safe and unsafe supplies, rural sanitation, hot water systems. Prerequisite: Math. 1, 51 or 71. Mr. Kessler.

121. WATER SUPPLY ENGINEERING. I; 3 cr. Theory, development, and improvement of water supplies, for domestic, manufacturing, and fire service. Prerequisites: Hydr. 1, 110. Mr. Kessler, Mr. Dodge.

122. SEWERAGE. II; 2 cr. The principles of design and maintenance of sanitary and storm sewer systems. Prerequisite: Hydr. 1 or 2, or concurrent registration. Fee $1.00. Mr. Kessler, Mr. Walton, Mr. Dodge.

123. Sewage Treatment and Municipal Waste Disposal. I, II; 1 or 3 cr. Development of disposal works and methods of treatment. If three credits are elected the student will design special features of various treatment plants. Fee $1.00 for 3 credits. Mr. Kessler.

124. Sanitary Chemistry and Analysis. I; 3 cr. Study of laboratory methods of chemical and bacterial analysis and the interpretation of results for sewage and trade wastes. Two recitations and one two-hour laboratory period each week. Lab. fee $3.00. Prerequisites: Hydr. 1 or 2, and 122. Mr. Nichols, Mr. Walton.

126. Sanitary Engineering Seminar. I, II; 1 cr. Review of literature on sanitary engineering, sewage, and trade waste problems. Mr. Kessler.

100. Thesis. I, II; 3-5 cr. Undergraduate and 5-8 cr. graduate investigation as required by engineering option selected by student. Civil or chemical engineers. Fee $2.00 per cr. Staff.

180. Advanced Independent Study in Hydraulic and Sanitary Engineering. I, II; *cr. See page 244. Staff.

280. Advanced Independent Study in Hydraulic and Sanitary Engineering. I, II; *cr. See page 244. Staff.

MACHINE DESIGN

Patrick Henry Hyland, M.E., *Associate Professor of Machine Design, Chairman*
James Wilbur McNaul, B.S., *Assistant Professor of Machine Design*
Donald Jasper Buroker, B.S., *Instructor of Machine Design*
Thomas Peter Colbert, B.S., *Instructor of Machine Design*

1. Mechanism. I; 4 cr. The relative motions of machine parts including linkages, cams, toothed gears, beltings, chains, and ratchets. Prerequisites: Drawing 1, 2. Mr. Hyland, Mr. McNaul, Mr. Buroker, Mr. Colbert.

2. Design Practice. II; 1 cr. A short course treating of the practical consideration of machine design. Study of the use and application in design of engineering material, formulae and tabulated data, together with a discussion of factor of safety, allowable stress, etc. Prerequisite: Machine Design 1. Mr. Hyland.

3. Machine Elements. I; 4 cr. 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; Mechanics 3 or concurrent enrollment. Mr. Hyland.

4. Advanced Machine Design. II; 4 cr. A continuation of course 3 applied to the design of complete machines. Prerequisite: Machine Design 3. Mr. McNaul.

5. Machine Elements. I, II; 3 cr. For electrical and chemical engineers. A study of the mathematical and empirical methods for the design of machine parts, with a parallel drafting course conforming to the requirements of modern drafting practice. Prerequisites: Machine Design 1, Mechanics 1, 2, 3. Mr. Colbert.

12. Machine Testing. II; 2 cr. Experimental determinations of the strength of machine elements and the efficiency of machines. Prerequisite: Machine Design 3. Lab. fee $6.00. Mr. McNaul, Mr. Buroker.

101. KINEMATICS AND DYNAMICS OF MACHINERY. II; 2 or 3 cr. Fundamental concepts of motion, velocity, acceleration, and equilibrium; graphical and analytical solution of velocities and accelerations in machine parts, determination of static and inertia forces in machines; combinations of static and inertia forces; effect of stress concentration and fatigue in machine parts; design of high-speed machines for strength, rigidity, balance, and lubrication; governors as to type and design. Mr. McNaul.

MECHANICS

MORTON OWEN WITHEY, C.E., *Professor of Mechanics, Chairman*
JESSE BENJAMIN KOMMERS, M.E., *Professor of Mechanics*
EDWARD ROSE MAURER, B.C.E., *Professor of Mechanics, Emeritus*
RAYMOND JEFFERSON ROARK, M.S., *Professor of Mechanics*
KURT FRANK WENDT, B.S., *Assistant Professor of Mechanics*
JAMES JAY CALDWELL, B.S., *Instructor in Mechanics*
LOUIS CORYDON HADDOX, B.S., M.S., *Instructor in Mechanics*
RICHARD SCHEUNEMANN HARTENBERG, M.S., *Instructor in Mechanics*
JOSEPH ARTHUR LISKA, B.S., *Instructor in Mechanics*
GEORGE JOHN TAUXE, JR., M.S., *Instructor in Mechanics*
GEORGE WILLIAM WASHA, Ph.D., *Instructor in Mechanics*

1. STATICS. I, II; 3 cr. Treated, as are all of the following courses, with special reference to the requirements of engineers. Prerequisite: Physics 51. First nine weeks of each semester.

2. DYNAMICS. I, II; 2 cr. Prerequisites: Mechanics 1; Mathematics 55, or concurrent registration. Last nine weeks of each semester.

3. MECHANICS OF MATERIALS. I, II; 5 cr. Prerequisites: Mechanics 1; Mathematics 55, or concurrent registration.

The next four courses are principally laboratory work; assigned readings and reports; and preparation and manufacture of materials.

4. STATISTICS AND DYNAMICS. I; 4 cr. Prerequisities: Physics 51; Mathematics 55, or concurrent registration. For chemical engineers.

5. MECHANICS OF MATERIALS. II; 3 cr. Prerequisites: Mechanics 1 or 4; Mathematics 55, or concurrent registration. For chemical engineers.

51. MATERIALS OF CONSTRUCTION. I; 2 cr. Prerequisite: Mechanics 3 or concurrent registration. For civil engineers. Lab. fee $6.00.

52. MATERIALS OF CONSTRUCTION. II; 2 cr. Continuation of 51. Lab. fee $6.00.

53. MATERIALS OF CONSTRUCTION. I, II; 2 cr. Prerequisite: Mechanics 3 or concurrent registration. For electrical, mechanical, and mining engineers. Lab. fee $6.00.

54. MATERIALS OF CONSTRUCTION. II; 2 cr. Prerequisite: Mechanics 3 or concurrent registration. For chemical engineers. Lab. fee $6.00.

101. ADVANCED STATICS. I; 2 cr. Continuation of Mechanics 1. Advanced problems in equilibrium and in composition and resolution of forces; space frameworks; suspended cables. Prerequisite: Mechanics 1. Mr. Roark.

102. ADVANCED DYNAMICS. II; 3 cr. Continuation of Mechanics 2. Kinematics and kinetics of plane, spherical and general motion; linear and

angular impulse and momentum; D'Alembert's principle. Prerequisites: Mechanics 2 and 3. Mr. Roark.

106. Advanced Mechanics of Materials. II; 3 cr. Some topics (curved beams, flat plates, thick cylinders, springs, etc.) and methods of analysis not included in Mechanics 3. Prerequisites: Mechanics 2 and 3. Mr. Maurer.

107. Mechanical Vibrations. I; 3 cr. General theory; vibration instruments; absorbers; stabilizers; critical speeds; balancing. Prerequisite: Mechanics 2. Mr. Maurer.

108. Materials of Construction. II; 2-5 cr. Laboratory research on the various materials. Research on concrete, plain and reinforced. Prerequisites: Mechanics 51 and 52, or 53. Lab. fee $3.00 per cr. Mr. Withey.

109. Graphics. II; 2 cr. A development of the principles of graphical computation, the construction of graphic charts, and the fitting of equations to plotted points. Application is made to various engineering problems. Mr. Kommers.

180. Advanced Independent Study. I, II; *cr. See page 244. Staff.

280. Advanced Independent Study. I, II; *cr. See page 244. Staff.

MINING AND METALLURGY

Edwin Roy Shorey, E.M., *Professor of Mining and Metallurgy, Chairman*
Richard Stanislaus McCaffery, E.M., *Professor of Mining and Metallurgy*
Joseph Francis Oesterle, Ph.D., *Associate Professor of Metallurgy*
George John Barker, E.M., *Assistant Professor of Mining and Metallurgy*
Philip C. Rosenthal, B.S., *Instructor in Metallurgy*

12. Mine Surveying. II; 2 cr. Classroom and drafting room study of the methods of surface and underground mine surveying, including shaft plumbing, underground practice, open-pit tonnage, progress, and final estimates. Followed by a week's survey of a zinc mine in southwest Wisconsin, or a nearby Wisconsin iron mine. Prerequisite: T. E. 108. Lab. fee $4.00. Mr. Shorey.

101. Excavation and Tunneling. I; 3 cr. Earth excavation; support of excavation, railway grading, canal and submarine excavation, irrigation and drainage channels, methods and cost. Steam shovels and mechanical excavators. Explosives: their chemical and physical natures, selection and use. Rock drills; rock excavation; tunneling; mine tunnels, hard and soft ground. Railway tunnels: in rock, in loose earth. Irrigation tunnels. Freezing processes, shields and caissons. Prerequisites: Chem. 2b; Phys. 52. Mr. Shorey.

103. Mining Methods. Yr; 3 cr. I. Classroom study of boring; various methods of prospect drilling and the compilation of results. Shaft sinking, underground prospecting and exploration, development and methods of surface and underground mining of ore, coal, placer and other mineral deposits. II. Classroom and drafting room design of a method of mining a selected ore-body from actual drilling records. Lab. fee second semester $1.00. Prerequisite: Junior standing. Mr. Shorey.

104. Valuation of Mineral Properties. II; 3 cr. Preliminary and detailed examination and reports. Prospecting and sampling of mineral properties. Construction and use of sample-maps and assay-plans. Valuation of metal, coal, and other mineral properties. Decline, ultimate production, and valuation of oil properties. Mine taxation. Prerequisite: Mining 103. Mr. Shorey.

105. Mine Engineering. Yr; 3 cr. Drainage, control, and removal of mine water. Ventilation, lighting, haulage, hoisting, mechanics and methods of hoisting, including regenerative systems. Mine signal systems, underground power installations. Surface plant; power generation and transmission; building, roads, water supply housing, mine accidents, safety, rescue, and recovery. Lectures, quiz. Prerequisites: Mining 103, Mechanics 1, 2. Mr. Shorey.

106. Individual Problems in Design. I, II; 3 cr. Design of mine plant, including hoisting, pumping, haulage, ventilating installation, and surface plant and ore bins: or the design of milling plant to treat a selected ore, including the design, selection and installation of complete plant. Prerequisites: Mining 103, 105, 107. Mr. Shorey.

107. Ore-Dressing and Coal Washing. I; 5 cr. Principles and practice of ore-dressing; preliminary breakers, and secondary crushers. Fine grinding and stamp-milling, sizing, screening and classifying. Concentration, jigging, tabling, slime concentration, log washing, magnetic and electrostatic separation. Oil flotation. All sliming processes. Mechanical engineering of concentrators. Coal breakers and washers. Economic limits of concentration. Lectures, quiz, and laboratory practice. Prerequisite: Senior standing. Lab. fee $8.00. Mr. Shorey.

109. Mine and Smelter Organization, Administration, and Accounts. I; 4 cr. The principles of administration applied to mines, mills, and smelters and their organizations. Labor supply and management. Wage systems. Mine accounting, including a set of reports and financial statements of a month's operation of a typical mine and smelter. Home office accounts. Cost keeping. Ore sales and contracts. Lectures, quiz. Prerequisite: Senior standing. Mr. McCaffery.

121. Assaying. I; 5 cr. Lectures and laboratory practice covering the fire and wet assay of ores, mattes, bullion, and other metallurgical products, using carefully checked ores, and smelter products from American and Canadian operations. Prerequisite: Chemistry 2b. Lab. fee $20. Mr. Barker.

122. Principles of Metallurgy. II. (a) Lectures, 3 cr. The statics, kinetics, and thermodynamics of metallurgy. Chemical equilibrium, reaction velocities in the common metallurgical processes illustrated. (b) Laboratory work, 2 cr. Experimental development of the above principles. (The two parts are closely related but they may be taken separately.) Prerequisite: Chemistry 2b. Fee $8.00. Mr. McCaffery, Mr. Oesterle.

123. Metallurgy of Copper, Lead, and Zinc. I; 5 cr. The blast and reverberatory processes for copper; the treatment of furnace products, converting matte and refining; reverberatory, ore-hearth and blast furnace processes for lead; sinter roasting, desilverization of base bullion. Roasting and distillation processes for zinc. Lectures, quiz and laboratory practice. Prerequisite: Chem. 2b. Lab. fee $8.00. By special arrangement students outside the department may enroll for three credits lecture only. Mr. Barker.

124. METALLURGY OF IRON AND STEEL. I, II; 3 cr. The iron blast furnace, Bessemer, open-hearth, and electric furnace steel processes. Control of furnace operation and product. Reheating, rolling, forging, and presses, alloy steels, standard specifications, inspection methods. Prerequisites: Chem. 2b; Physics 52. Mr. McCaffery.

125. METALLURGY OF MINOR METALS. II; 2 cr. The metallurgy of tin, nickel, aluminum, mercury, cadmium, bismuth, and antimony. Recovery of metal from by-products and secondary sources. Prerequisite: Chem. 2b. Mr. Barker.

126. CLAY PRODUCTS MANUFACTURE. I, II; 2 or 3 cr. Lectures and laboratory work. Clay testing, brick, tile, and ceramics manufacture. The making of Portland cement. Fee $4.00 per lab. credit. Prerequisite: Phys. 52. Mr. Barker.

127. HYDROMETALLURGY OF GOLD, SILVER, COPPER, LEAD AND ZINC. II; 5 cr. Treatment of the ores of the noble metals by the amalgamation, cyanidation and chlorination processes. Electrolytic refining of doré bullion. Treatment of copper, lead and zinc ores by the wet methods. Roasting and leaching of ores, purification of solutions, recovery of metals and treatment of by-products. Laboratory work covers experiments in refining electrolytic copper, the production of zinc from solution by electrolytic processes, the refining of lead by electrolytic methods and the production of basic lead carbonate electrolytically. Fee $8.00. By special arrangement students outside the department may enroll for three credits lecture only. Mr. Barker.

128. IRON AND STEEL LABORATORY. I, II; 2 or 3 cr. I. The physical properties and structure of low and medium carbon steels as affected by their heat-treatment and mechanical treatment. II. The construction and effects of acid, neutral and basic oxidizing and reducing slags. Prerequisite: Mining 124 or concurrent registration. Lab. fee $4.00 per credit. Mr. Rosenthal.

130. PHYSICAL CHEMISTRY OF THE METALS AND MINERALS. Yr; 3 cr. The underlying principles of physical metallurgy. The use of chemical statics as applied to metallurgical operations. Development of the principles of equilibrium in binary, ternary and quarternary systems. Surface reactions and adsorption. Lectures, quiz. Prerequisites: Chemistry 2b, Physics 52. Mr. Oesterle.

131. FOUNDRY METALLURGY. II; 3 cr. The properties of gray iron, foundry raw materials, the cupola and air furnace. The properties and production of malleable iron. Lectures, quiz, laboratory. Prerequisites: Chem. 2b; Phys. 52. Fee $4.00. Mr. Rosenthal.

135. METALLURGICAL CALCULATIONS. I; 3 cr. The calculation of heat balances and charges for iron and steel and nonferrous metallurgical processes. The basic calculations involved in the control of ore-dressing operations. Lectures, quiz. Prerequisites: Chemistry 2b, Physics 52, Math. 55, Mining & Metallurgy 122. Mr. Rosenthal.

140. HEAT TREATMENT OF SOFT AND MEDIUM STEELS. I; 3 cr. A study of the iron-carbon system based upon the diffusion of carbon and other soluble contained substances. A systematic discussion of the commercial heat treatment of forged and rolled steels. Prerequisites: Chem. 2b; Phys. 52. Mr. Oesterle.

147. Alloy Structures. I; 3 cr. Lectures and laboratory experiments illustrating fundamental properties of the metals and their alloys, from the viewpoint of complete metallic systems. Prerequisites: Min. and Met. 122, 124. Fee $4.00. Mr. Oesterle.

148. X-Ray Studies in Metallurgy. II; 3 or more credits. The application of the principles of diffraction analysis using a residual gas tube with variable anodes to the study of lattice constants of metallurgical alloys. The interpretation of radiographic photographs. Prerequisite: Senior standing. Fee $4.00 per lab. credit. Mr. Oesterle.

180. Advanced Independent Study. I, II; *cr. See page 244. Staff.

210. Advanced Ore Dressing. I, II; 2 to 5 cr. Lectures, quiz and laboratory practice covering the application of the flotation process to the treatment of metallic and non-metallic ores:—or detailed laboratory research with a view to discovery of a method of treating a selected ore. The particullar application of flotation and other milling principles covered in outline by Mining 107. Lab. fee $4.00 per lab. credit. Mr. Shorey.

225. Metallurgical Laboratory. I, II; 2 to 5 cr. Detailed research problems covering selected metallurgical processes. The particular application of one or more of the metallurgical principles outlined by courses 122, 124. Lab. fee $4.00 per credit. Mr. McCaffery, Mr. Oesterle.

230. Advanced Physical Chemistry of the Metals. I, II; 2 or 3 cr. An advanced treatment of the principles of physical metallurgy, and the direct application of these principles to metallurgical practice. Mr. Oesterle.

231. The Iron Blast Furnace. I; 5 cr. The construction of the furnace and accessory apparatus. The reactions in the furnace and factors influencing control of the process are taken up in lectures. Problems in furnace design are worked out in the drafting room. Mr. McCaffery.

232. Converter and Open-Hearth Steel. II; 5 cr. The chemistry of the refining processes. The order of reaction as affected by temperature, the various factors which enter into the control of the process, and the quality of the product are studied in lectures; and in the drawing room the principles entering into the design of the converter and open-hearth plant are applied in the solution of practical problems. Mr. McCaffery.

240. Laboratory Research in Copper, Lead, and Zinc Metallurgy. An advanced study of methods of reduction of the metals covered in outline by courses 123, 125, 127. Investigation of processes, selection of equipment, plant design. Economics of smelting. Individual problems. Lab. fee $4.00. per credit. Mr. Barker.

250. Properties and Manufacture of Gray Iron Castings. Yr; 3 cr. Mr. McCaffery.

255. Properties and Manufacture of Steel Castings. Yr; 3 cr. Mr. McCaffery.

280. Advanced Independent Study. I, II; *cr. See page 244. Staff.

UN-NUMBERED COURSES

Summer Inspection Trips. Inspection trips of six weeks' duration visiting several of the more important mining or metallurgical centers of the United

States and Canada are required for graduation. They should be taken after the junior year.

FIRST AID TRAINING. A week's intensive training in the first aid methods for miners. Given in conjunction with the United States Bureau of Mines. Required for graduation. Taken in the junior year.

MINE RESCUE TRAINING. A week's intensive training in mine rescue and recovery methods using oxygen breathing apparatus. Given in conjunction with the United States Bureau of Mines. Required in the senior year.

ANNUAL FOUNDRY CONFERENCE. In addition to the regular courses conducted by the Department of Mining and Metallurgy, an annual foundry conference is conducted during the week of February 1 under the auspices of the department. At this conference those engaged in the foundry industry—managers, superintendents, research experts, foremen, etc.—present their problems and discuss them in round table meetings under the leadership of prominent men in the industry. Discussions on cupola practice, sand conditioning, metallography, cost accounting, routing and planning, malleable castings, steel castings, aluminum and light metal castings, heat treatment of steel, sand testing, bronze and brass castings, and defects in castings are features of the conference. In addition to the discussions, laboratory tests and demonstrations are organized. While this work was developed for the industry in Wisconsin, an equally large attendance from outside the State is a regular feature.

RAILWAY ENGINEERING

LESLIE FLANDERS VAN HAGAN, C.E., *Professor of Railway Engineering, Chairman*

ALAN D'YARMETT FREAS, B.S., *Instructor in Railway Engineering*

1. RAILWAY CURVES. I, II; 2 cr. The computation and field location of simple, compound, and spiral curves and railway turnouts. Prerequisites: Trigonometry, drawing, elementary surveying. Mr. Van Hagan, Mr. Freas.

2. THEORY OF RAILWAY LOCATION AND CONSTRUCTION. I; 3 cr. Recitation lectures and problems. Prerequisite: Railway 1 or concurrent registration. Mr. Van Hagan, Mr. Freas.

22. PRACTICE IN RAILWAY LOCATION AND CONSTRUCTION. Two weeks, at the close of the second year, spent in field and office practice. Prerequisites: Railway 1 and 2 and Topographic Engineering 2. Registration fee $9.00; lab. fee $3.00. Mr. Van Hagan, Mr. Freas.

105. ENGINEERING ECONOMICS. The course formerly given under this number is now listed as Course 103 under the general heading of ENGINEERING ECONOMICS.

107. ADVANCED RAILWAY DESIGN. I, II; 2 cr. Special problems of an advanced nature, together with studies and discussions of matters of current interest in connection with railway engineering. Elective for seniors and graduate students. Mr. Van Hagan.

110. MASONRY CONSTRUCTION. II; 2 cr. Theory governing the design and construction of masonry structures. Prerequisites: Mechanics 3, 51. Mr. Van Hagan, Mr. Freas.

111. Substructures. II; 1 cr. Ordinary and deep foundation work; lectures and problems. Prerequisite: Railways 110. Mr. Van Hagan.

112. Estimates. II; 2 cr. Practice in scaling quantities and preparing estimates of cost. Prerequisite: Junior standing. Given when demand warrants. Mr. Van Hagan.

ROADS AND PAVEMENTS

(See Highway Engineering and City Planning, page 285.)

SHOP LABORATORIES

James Morgan Dorrans, *Associate Professor of Mechanical Practice, Superintendent*
Richard Rex Bell, *Instructor in Mechanical Practice*
Bert Bernard Bridge, *Instructor in Mechanical Practice*
George David Hitchcock, *Instructor in Mechanical Practice*
Nicholas Francis Hollander, *Instructor in Mechanical Practice*
Charles Frederick Peters, *Instructor in Mechanical Practice*
Thomas Puddester, *Instructor in Mechanical Practice*
Robert Nicholas Schumann, *Instructor in Mechanical Practice*
George Francis Young, *Instructor in Mechanical Practice*

The following shop laboratory courses are required in Mechanical Engineering: Of freshmen, Courses 1, 2, 4, 5; of sophomores, Courses 6, 13; of juniors, Course 7; of seniors, Course 9. A total of ten credits and six weeks of industrial or mechanical practice are required.

The following shop laboratory courses are required in Electrical Engineering: Course 11 in the freshman and 12 in the sophomore year, a total of four credits.

The following shop laboratory courses are required in Chemical Engineering: Courses 1, 2, 4 5, in freshman year, a total of four credits.

1. Elementary Pattern Making. I, II; 1 cr. Bench and lathe work in wood. Principles of moulding as applied to foundry work. Patterns for production. A knowledge of common woods. Fee $3.00. Mr. Hollander.

2. Bench Work, Forge, and Welding. I, II; 1 cr. Instruction in the use of bench metal tools, acetylene and electric welding, splicing, soldering and drill press work, pipe fitting, forge practice, tempering and brazing. Fee $3.00. Mr. Schumann, Mr. Peters.

4. Lathe Practice in Metals. I, II; 1 cr. The fundamentals of lathe practice on various metals as applied to industrial practice. Fee $3.00. Mr. Bell, Mr. Hitchcock, Mr. Puddester.

5. Shaping and Milling Practice in Metals. I, II; 1 cr. Principles and standard industrial methods and their application to surfacing, gang milling, and gear cutting. Fee $3.00. Mr. Bell, Mr. Hitchcock, Mr. Puddester.

6. Tool Development. I; 2 cr. Principles and fundamentals of tool design embodied in the making of production tools and gages. Gas and electric methods of hardening and tempering. Case hardening, application of thermocouple and temperature recording devices. Hardness testing. Prerequisite: Shop 4, 5. Fee $6.00. Mr. Bell, Mr. Hitchcock, Mr. Puddester.

7. Industrial Methods and Practice. I; 2 cr. Principles of production machines demonstrated and applied. Application of jigs, fixtures, and dies to manufacturing. Die casting and broaching. Each student responsible for a commercial problem on a production basis; application of time study methods. Prerequisites: Shop 2, 4, 5 and 6. Fee $6.00. Mr. Bell, Mr. Hitchcock, Mr. Puddester.

8. Advanced Industrial Methods. II; 2 to 4 cr. Research and practical problems which can be developed in the laboratory. Prerequisite: Shop 7. Fee $3.00 per credit. Mr. Bell, Mr. Hitchcock, Mr. Puddester.

9. Advanced Pattern Practice. II; 1 cr. Building up patterns and core boxes, skeleton construction, type patterns for molding machine work, pattern shop management. Prerequisite: Shop 1. Regularly for seniors only. Fee $3.00. Mr. Hollander.

10. Industrial or Mechanical Practice. Not less than six weeks of work, performed outside the University, in a shop with a well-developed system of methods pertaining to the manufacture, building, or making general repairs of machinery, machine parts, or metal products. Application for credit must be made upon a form furnished by the adviser, and accompanied by credentials stating the length of service, kind of work and any other pertinent information necessary for granting of this credit by the Mechanical Engineering Course Committee.

12. Advanced Shop Practice. II; 2 cr. Lathe work in various metals, shaping, drill press work, assembling. Production time study methods. For sophomore electricals only. Fee $6.00. Mr. Bell, Mr. Hitchcock, Mr. Puddester.

13. Elementary Foundry Practice. I, II; 1 cr. Bench molding, floor molding, and machine molding, nonferrous metal alloyings, cupola practice, core making, production methods. Fee $3.00. Mr. Bridge, Mr. Young.

14. Advanced Foundry Practice. II; 2 cr. Cupola practice, bench and floor work, bronze and white metal alloys. Skin drying and sweep work. Production methods and costs. Tests, metal analyses. Elective for junior and senior engineers. Fee $6.00. Mr. Bridge, Mr. Young.

108. Welding. I, II; 2 cr. Acetylene and electric arc welding. Design and fabrication of machine parts. Comparative costs. Testing of welds. Application to heavy and light construction. Elective for graduates and undergraduates. Fee $6.00. Mr. Peters, Mr. Schumann.

STEAM AND GAS ENGINEERING

Gustus Ludwig Larson, M.E., *Professor of Steam and Gas Engineering, Chairman*

Ben George Elliott, M.S., M.E., *Professor of Mechanical Engineering, Extension Division and College of Engineering*

Leroy Alonzo Wilson, M.E., M.M.E., *Professor of Steam and Gas Engineering*

Delmar Wood Nelson, M.S., M.E., *Associate Professor of Steam and Gas Engineering*

Grover C. Wilson, M.S., M.E., *Associate Professor of Steam and Gas Engineering*

Reed Alden Rose, M.S., *Assistant Professor of Steam and Gas Engineering*

WILLIAM CONNOR WOERNER, B.S., M.E., *Instructor in Steam and Gas Engineering*
ORVILLE CHARLES CROMER, M.S., M.E., *Instructor in Steam and Gas Engineering*
EINAR THEODORE HANSEN, M.S., M.E., *Instructor in Steam and Gas Engineering*

1. THERMODYNAMICS. I; 4 cr. A study of the laws of heat and mechanical energy and their application to air compressors and external and internal combustion engines, followed by a study of vapors and theoretical steam cycles. Prerequisites: Physics 51, 52; Mathematics 54, 55. Required of junior mechanical engineers. Mr. L. A. Wilson, Mr. Elliott, Mr. G. C. Wilson.

2. THERMODYNAMICS. II; 4 cr. Continuation of S. and G. 1. A study of fuels and theoretical combustion, stokers and boilers, followed by a study of various types of steam engines and turbines with special attention to the economy of various designs of such prime movers. This is followed by the principles of power plant auxiliaries, and refrigerating machinery. Prerequisite: S. and G. 1. Mr. L. A. Wilson, Mr. Elliott, Mr. G. C. Wilson.

3. THERMODYNAMICS. I; 3 cr. A course in the theory and principles underlying heat engines. This course is similar to course 1 except less time is spent on problem work. Prerequisites: Physics 51, 52, 53, or 54; Mathematics 54, 55. Required of junior electrical and chemical engineering students. Mr. Nelson, Mr. Rose, Mr. Hansen, Mr. Woerner.

4. THERMODYNAMICS. II; 3 cr. Continuation of S. and G. 3. This course is similar to course 2 except that it is more abbreviated. Prerequisite: S. and G. 3. Mr. Nelson, Mr. Rose, Mr. Cromer, Mr. Hansen, Mr. Woerner.

7. THERMODYNAMICS FOR CIVIL ENGINEERS. I; 2 cr. A very abbreviated course in the thermodynamics of gases and vapors and their application to the more important types of steam engines, gas engines, and boilers. Prerequisites: Physics 51, 52; Mathematics 54, 55; registration in S. and G. 127. Required of senior civil engineers. Mr. Cromer.

105. STEAM AND GAS ENGINE CALCULATIONS. I; 2 cr. A course devoted to the calculations used in practice for determining size and the more important details of steam engines, boilers, condensers, cooling towers, etc. Problems are assigned and discussed and solved in the class room. Prerequisite: S. and G. 2 or 4. Required of senior mechanical engineers. Mr. Larson.

108. HEATING AND VENTILATING. I, II; 3 cr. The principles and the theory of modern systems of heating and ventilating buildings of various types, accompanied by problems involving the design and specifications for such systems. Prerequisite: S. and G. 2, 4, or 7. Mr. Larson.

109. INTERNAL COMBUSTION ENGINES. I, II; 2 cr. The theory and design of gas, gasoline, and fuel oil engines; also such details as carburetion, fuel injection, and ignition. Special attention is given to the automotive type Diesel and other high speed engines. Prerequisite: S. and G. 2 or 4. Mr. G. C. Wilson.

110. AIR CONDITIONING. II; 2-3 cr. Theory and principles of air conditioning, including the basic calculation for and the selection of equipment, and the design and specifications for complete systems covering both human comfort and industrial process work. Prerequisite: S. and G. 108. Mr. Larson.

112. REFRIGERATION. II; 2 cr. The theory and principles of refrigeration,

including a study of the selection of equipment, the design and specifications of systems, and the properties of various working substances. Prerequisite: S. and G. 2 or 4. Mr. Larson.

180. ADVANCED INDEPENDENT STUDY. I, II; *cr. See page 244. Staff.

280. ADVANCED INDEPENDENT STUDY. I, II; *cr. See page 244. Staff.

LABORATORY COURSES

Mr. G. C. Wilson and Laboratory Instructors

22. ELEMENTARY TESTING. II; 2 cr. Calibration of instruments, valve setting, and the determination of the efficiencies and characteristics of simple heat engines. Gas and fuel analysis. Prerequisite: Registration in Steam and Gas 2. Required of juniors in mechanical engineering. Lab. fee $8.00, including laboratory manual.

23. ADVANCED TESTING OF HEAT ENGINES. I; 2 cr. Continuation of S. & G. 22, covering more complex types of heat engines, including refrigeration machinery, steam turbines, boilers and power plants. Required of seniors in mechanical engineering. Lab. fee $6.00.

25. ELEMENTARY TESTING. II; 2 cr. Calibration of instruments and the adjustments of simple heat engines. Also the determination of the efficiencies, losses, and characteristics of simple heat engines, turbines, and internal combustion engines. Prerequisite: Registration in S. and G. 4. Required of juniors in chemical engineering. Laboratory fee $8.00, including laboratory manual.

26. ADVANCED TESTING OF HEAT ENGINES. I; 1 cr. Continuation of S. and G. 25, covering more complex types of heat engines, including air compressors, refrigeration machinery, boiler plant, and Diesel engine tests; also air measurement. Required of seniors in chemical engineering. Laboratory fee $3.00.

28. ELEMENTARY TESTING. II; 2 cr. Covers about the same experiments as S. and G. 25, but the laboratory work is somewhat abbreviated and more time is spent on the calculation of results. Prerequisite: Registration in S. and G. 4. Required of juniors in electrical engineering. Laboratory fee $8.00, including laboratory manual.

29. ADVANCED TESTING OF HEAT ENGINES. I; 1 cr. Continuation of S. and G. 28, covering more complex types of heat engines including air compressors, refrigeration machinery, boiler plant, and Diesel engine tests. Gas and fuel analysis. Required of seniors in electrical engineering. Lab. fee $3.00.

100. SENIOR THESIS. I, II; 1-5 cr. Special problem work in Mechanical Engineering. Prerequisite: Senior standing. Lab. fee $3.00 per credit.

124. ADVANCED ENGINEERING TESTING. II; 1 cr. Continuation of S. and G. 23. Dynamometer test of an automotive-type engine, test of an air compressor, fan testing and measurements of air and steam flow. Required of seniors in mechanical engineering. Prerequisite: S. and G. 23. Lab. fee $3.00.

127. HEAT ENGINE TESTING. I; 2 cr. Calibration and adjustment of instruments, determination of losses and efficiencies of heat engines, including

the principal types of steam and internal combustion engines, including power plant and refrigeration plant tests. Prerequisite: Registration in S. and G. 7, or credit in 3 and 4. Required of seniors in civil engineering. Lab. fee $8.00, including laboratory manual.

128. HEATING AND VENTILATION LABORATORY. II; 2 cr. Covers the calibration of heating and ventilating instruments, checking the efficiencies of ventilating systems and air conditioners, comparative tests of unit heaters, and a study of methods for determining air infiltration into buildings. Prerequisite: Completion of a beginning S. and G. laboratory course. Lab. fee $6.00.

151, 152, 153, and 154. ADVANCED STEAM AND GAS PROBLEMS. Odd numbers I and even numbers II. 1 to 3 cr. each. Research or practical problems which can be worked out in the Steam and Gas Laboratory. The student may work on some project already under investigation or he may select his own project. In either case he works very largely on his own initiative with periodic faculty conferences. Succeeding courses may be a continuation of a previously started project, or they may be entirely different projects. Prerequisite: Completion of a beginning S. and G. laboratory course, or permission from the department. Lab. fee $3.00 per credit.

200. GRADUATE RESEARCH. I, II; 3 to 5 cr. This course covers the major research projects which are carried on for credit toward advanced degrees. Prerequisite: Graduate standing in Engineering. Lab. fee $3.00 per credit.

STRUCTURAL ENGINEERING

WILLIAM SPAULDING KINNE, B.S., *Professor of Structural Engineering, Chairman*

WILLARD SHERWIN COTTINGHAM, M.S., C.E., *Assistant Professor of Structural Engineering*

2. STRUCTURAL ANALYSIS. II; 4 cr. Simple bridge stresses. Four recitations. Prerequisite: Mechanics 1. Mr. Kinne, Mr. Cottingham.

3. STRUCTURAL DESIGN. I; 3 cr. The analysis and design of simple members and connections, roof trusses and plate girders. Prerequisites: Struct. Engr. 2, Mechanics 3. Mr. Kinne, Mr. Cottingham.

4. STRUCTURAL DESIGN. II; 2 cr. The analysis and design of bridge trusses and building frames. Prerequisites: Struct. Engr. 2, 3. Mr. Kinne, Mr. Cottingham.

10a. STRUCTURAL DESIGN. I; 2 cr. A short general course in the designing of roofs and buildings. Designed for students in mechanical, electrical, and mining engineering. Prerequisites: Mechanics 1, 3. Given when demand warrants. Mr. Cottingham.

10b. STRUCTURAL DESIGN. II; 2 cr. A short course in the analysis and design of reinforced concrete structures. Prerequisites: Mechanics 1, 3. Given when demand warrants. Mr. Cottingham.

105. REINFORCED CONCRETE. I; 3 cr. Principles of reinforced concrete construction; analysis and problems in design. Prerequisites: Mechanics 1, 3. Mr. Cottingham.

106. Reinforced Concrete. I; 2 cr. Design and analysis of reinforced concrete arches. Prerequisites: Mechanics 1, 3. Mr. Kinne.

107. Structural Analysis. I; 3 cr. Statically indeterminate structures. Analysis of swing, cantilever, arch, and suspension bridges. Prerequisite: Struct. Engr. 2. Mr. Kinne.

108. Structural Analysis. II; 2 cr. Problems in statically indeterminate structures, rigid frame analysis, and secondary stresses. Prerequisites: Struct. Engr. 2, 107. Given when demand warrants. Mr. Kinne.

111. Reinforced Concrete. II; 2 cr. Analysis and problems in design. A continuation of Struct. Engr. 105, which is prerequisite. Mr. Kinne.

112. Highway Bridges and Culverts. II; 2 cr. Design and analysis of highway bridges and culverts. Elective for senior civil engineers and graduates in civil engineering. Prerequisites: Struct. Engr. 2, 3, 105. Given when demand warrants. Mr. Cottingham.

180. Advanced Independent Study. I, II; *cr. See page 244. Staff.

280. Advanced Independent Study. I, II; *cr. See page 244. Staff.

TOPOGRAPHIC ENGINEERING

Ray Sprague Owen, B.S., *Associate Professor of Topographic Engineering, Chairman*

Eldon Christian Wagner, B.S., *Instructor in Topographical Engineering*

1. Elementary Surveying. I; 2 cr. The work consists of the practice and theory of pacing, taping and levelling. Lab. fee $4.50. Mr. Owen.

2. Elementary Surveying. II; 2 cr. A continuation of course 1 including the field and office work of a variety of practical problems in the adjustment and use of the engineer's level, compass, and transit. Lab. fee $4.50. Mr. Wagner.

3. Land Surveying. I; 3 cr. The field work consists of the adjustment and use of the transit, sextant, and plane table in problems relating to land surveying and the making of a city plat. In class the theory involved in above field work is covered, including effect on results, of lack of adjustment, and instrumental inaccuracies, and their elimination, also the methods used in original land and city surveys and resurveys. Practice is given in the computation arising from the common problems of land surveying. Special emphasis is placed on methods of computation and arrangement of data. The office work of platting the field notes and making finished maps follows the field work. Prerequisites: T. E. 2 and trigonometry. Lab. fee $3.00. Mr. Owen.

104. Advanced Surveying. II; 3 cr. Mining, topographic, and hydrographic surveying, stream gauging, and field astronomy. The classroom work includes the methods and computation relating to above subjects while the field work consists of solar and stellar observations, and topographic surveys, with finished maps. Prerequisite: T. E. 3. Lab. fee $4.50. Mr. Owen.

106. Summer Survey Camp. Four weeks at the close of the school year are spent in field and office practice while in camp at Devils Lake, Wis-

consin. An area of several square miles is surveyed and mapped, based upon triangulation with base line measurement. In addition students carry on both river and lake surveys, including the gauging of the Baraboo River, both by current meter and rod floats. The survey begins the week preceding Commencement and is required of all civil engineers. Prerequisite: T. E. 104 or its equivalent. (Six weeks with Railways 22.) Minimum cost to student $100.00 for six weeks, including fees, board, and spending money. Mr. Owen, Mr. Wesle, Mr. Beebe, Mr. Wagner and Instructors.

107. Topographic Engineering. II; 3 cr. A general course in theory and practice of surveying designed especially for non-engineering students who desire a usable knowledge of general surveying and mapping. The class work includes such elementary trigonometry as may be necessary, distance measurements, levelling, transit work, stadia, transit and plane table mapping and contouring, hydrographic surveying, land surveying, stream gauging, area and earthwork computations, and compass directions. The field practice consists of levelling, taping, transit traverse, stadia mapping by transit and plane table and topographic sketching. Lab. fee $4.50. Mr. Wagner.

108. Short Course in Surveying. I, II; 3 cr. Planned to meet the demands of electrical and mechanical engineering students for a general study of the subject, including the use of transit, level, and tape, and the principles of topographic, hydrographic, and land surveys, also the drawing of profiles and computation of areas. Prerequisite: Trigonometry. Lab. fee $4.50. Mr. Wagner.

TWO-YEAR NON-CREDIT COURSE IN BUILDING DESIGN AND CONSTRUCTION AT MILWAUKEE CENTER OF UNIVERSITY EXTENSION DIVISION

A two-year non-credit class course in Building Design and Construction providing special intensive training in the design and construction of buildings is given at the Milwaukee Center of the University Extension Division. This two-year course is of particular interest to men who wish to become building inspectors, construction superintendents, structural or architectural draftsmen, or structural designers. A certificate is issued by the Extension Division upon the satisfactory completion of the course.

All inquiries for information regarding this course should be sent to Professor W. J. Fuller, University Extension Division, 623 West State Street, Milwaukee, Wisconsin.

COLLEGE OF AGRICULTURE

C. L. CHRISTENSEN, DEAN

PLAN OF THE COLLEGE

The work of the College is conducted on a three-fold basis. Each department aims:

First, to give instruction to students at the University.

Second, to develop science through investigation and experiment.

Third, to disseminate information among the farm men and farm women of the State by means of publications, farmers' courses, and the agricultural extension service.

The College of Agriculture is one of the general divisions of the University. Instruction in the general sciences, languages, and mathematics is given to agricultural and home economics students in the College of Letters and Science; but for the purely agricultural and home economics subjects, separate buildings, equipment, and staff of instructors are maintained. Students at this college have the same standing as students of other colleges and have the advantages incident to a large university, such as the general laboratories, libraries, and student organizations. Aside from the purely instructional work of the College, the facilities for research afford special opportunities for both regular and advanced students to secure a knowledge of the best methods in agriculture and home economics.

EQUIPMENT

BUILDINGS. The buildings occupied by the College of Agriculture are located at the west end of Observatory Hill. They have been erected and equipped with particular attention to the special needs of the work in the various departments.

The administrative offices of the College, Experiment Station, and Agricultural Extension, lecture rooms, laboratories, and offices for several of the departments are located in Agricultural Hall. At the rear of the main building is a large wing which furnishes quarters for the library and reading room on the ground floor. The second and third floors are occupied by an auditorium with a seating capacity of 750, which is used primarily for general assemblies.

West of the main building is a group of buildings comprised of Hiram Smith Hall, the Dairy Laboratory, and the bulletin mailing department.

The Soils Building, with greenhouses adjoining, provides lecture rooms and laboratories for the instructional and research work of the department, as well as offices for the State Soil Survey.

The Agronomy, Horticulture, and Plant Pathology Departments are located in one building, which, with the adjoining greenhouses, is provided with modern equipment for instruction and research in these subjects.

The Genetics Building contains the departments of Genetics and Veterinary Science.

The Agricultural Engineering Building provides offices, lecture and drafting rooms, power and farm machinery laboratories, a laboratory for the smaller farm tools and implements, and a concrete construction laboratory.

The Department of Biochemistry is located in the Biochemistry Building. It contains large laboratories, and an assembly room with seating capacity of 400, in addition to special laboratories for advanced students and the chemistry laboratories of the Experiment Station, including those of the feed and fertilizer inspection service.

The Departments of Home Economics are located in the Home Economics Building, where offices, classrooms, and laboratories are provided, and in the practice cottage where the work in household administration, house decoration, and dietetics has ample scope for practical solution. The departments are provided with all the necessary furnishings and apparatus to give thorough instruction in the subjects of housing and sanitation, food study, related art, dietetics, textiles, clothing, house decorations, and institutional economics.

The Live Stock Pavilion provides a large arena which is used for stock judging work and exhibition purposes. The pavilion has seating arrangements for 2,500 people. Beneath the amphitheater seats there are stalls for the housing of horses belonging to the University Farm. In addition to this there are offices, operating room, and dispensary for Veterinary Science.

The Poultry Building provides offices and classrooms. Pens of all of the important breeds are provided, and practical instruction is given in all lines of poultry raising. A separate research poultry plant is maintained on an outlying portion of the University Farm.

The Economic Entomology department has offices, classrooms and laboratory facilities for both undergraduate and graduate instruction in King Hall.

The University Farm buildings include barns for the horses, cattle, sheep, and swine as well as two large stock-judging rooms. Other buildings are provided for storing farm machinery, silage, manure, and tobacco.

A group of small buildings, formerly devoted to the manufacture of hog cholera serum is now being used for the testing of commercial serums and for investigational work in diseases of livestock.

Library. The Agricultural College Library includes about 35,000 bound volumes and 29,000 pamphlets, relating to agriculture and home economics. 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 and assistants are in attendance to aid students.

Farm Lands. The College of Agriculture is provided with four farms, the University Farm, Eagle Heights Farm, Gregg Farm, and the Hill Farm, totaling about 846 acres of tillable land. These farms are operated to facilitate both instruction and research in agriculture.

Live Stock. The university herds and flocks represent the principal breeds of dairy and beef cattle, draft-horses, swine, sheep, and poultry, including many individuals that are well-known prize winners.

COURSES OF INSTRUCTION

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 in agriculture and home economics are left largely to the selection of the student. Students may participate in experiments in progress and, after suitable experience, conduct independent investigations. When contributions to

knowledge of permanent value are made, they may be published through the bulletins with proper credit to the contributor

LONG COURSE IN AGRICULTURE OR HOME ECONOMICS. These four-year courses leading to the degree of Bachelor of Science embrace general training in chemistry, physics, biology, bacteriology, and other branches which have applications in agriculture or home economics. The fields are so broad, however, that it is impossible for the student to pursue in four years all the technical courses offered, in addition to acquiring the necessary fundamental studies, and hence much liberty of election is allowed.

COURSES FOR THE TRAINING OF TEACHERS. Graduates of the four-year courses in Agriculture or Home Economics who fulfill the special educational professional requirements will be entitled to receive a special license to teach agriculture, home economics, or the vocation of home making, and a general license to teach other subjects. See School of Education.

SUMMER SESSION COURSES include work in agricultural bacteriology, agricultural chemistry, agricultural economics, agricultural education, agricultural engineering, agronomy, animal husbandry, dairying, plant pathology, poultry, soils, and home economics. The home economics work includes courses in art and design, clothing and textiles, food study and cookery, dietetics, research in nutrition, teaching home economics, sociological study of the family, and extension work.

MIDDLE COURSE IN AGRICULTURE, leading to the title of Graduate in Agriculture, consists of two full college years and is planned especially for those who wish greater specilization in agriculture with less of general scientific training.

PRE-FORESTRY TRAINING. The University of Wisconsin does not offer training in professional forestry. However, a schedule of courses has been arranged in the College of Agriculture which students may take for one or two years before transferring to a forestry school in another state. Wisconsin residents may find it more economical to spend one or two years at the University of Wisconsin before moving out of the State to complete their training in forestry.

PRE-VETERINARY TRAINING. Professional training in veterinary medicine is not offered at the University of Wisconsin. Colleges of veterinary medicine confer the degree Doctor of Veterinary Medicine after the student has completed four years of professional work. Many of the leading veterinary colleges now require applicants for admission to present at least one year of college work to equip them better for the more highly specialized veterinary studies. In order to give residents of Wisconsin an opportunity to secure at the University of Wisconsin a year of college work to qualify them for entrance in a veterinary college, the College of Agriculture has arranged a series of courses the satisfactory completion of which will enable the student to satisfy the entrance requirements at any veterinary college.

SHORT COURSE IN AGRICULTURE. This course, consisting of two winter sessions of fifteen weeks each, is provided for those who can devote only a limited time to study and who, therefore, desire the greatest amount of directly useful knowledge that can be acquired in the brief time allowed. This course begins about November 18 and closes about March 15. An illustrated circular describing this course may be had on request to Prof. V. E. Kivlin, College of Agriculture, Madison, Wis.

WINTER DAIRY COURSE. This course is open to persons who have had at least six months' experience in a creamery or cheese factory and covers two terms of six weeks each, beginning about November 1. The course is designed to train creamery butter makers and factory cheese makers in the science and practice of their respective lines. Certificates are given to those who satisfactorily complete the full course and who have worked in a creamery or cheese factory for two seasons of not less than seven months each, one 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. H. C. Jackson, College of Agriculture, Madison, Wis.

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. Laboratory exercises and theoretical instruction are given as required.

EXTENSION COURSES GIVEN ON THE CAMPUS

FARMERS' WEEK. This is a popular course of addresses, demonstrations, and exercises, covering a period of one week, 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. This course is given early in February, by the staff of the College of Agriculture, assisted by other speakers. Programs may be had upon application to Prof. W. W. Clark, College of Agriculture, Madison, Wis.

WOMEN'S WEEK IN HOME ECONOMICS. This course for one week is designed to give women practical and helpful instruction in the various phases of home economics. The plan of instruction includes lectures and demonstrations in all phases of home management. The course is held at the same time as the Farmers' Week to afford an opportunity for farmers' wives and daughters to attend. Detailed information will be furnished upon request to Prof. Abby L. Marlatt, Department of Home Economics, Madison, Wis.

THREE-DAY DAIRY MANUFACTURERS' CONFERENCE. This is a three-day course of lectures, conferences, and demonstrations, designed to meet the needs of milk distributors, dairy plant operators, and board of health officials, and give them advanced instruction in connection with problems of managing their establishments as well as to inform them on recent advances in the science of dairying. The dates for the next course will be March 14, 15 and 16, 1939. Detailed information may be secured upon application to Prof. H. C. Jackson, College of Agriculture, Madison, Wis.

YOUNG PEOPLE'S WEEK. A week's course of lectures, demonstrations, and exercises which are of interest to farm boys and girls is held each year during Commencement week. Those who participate in the Boys' and Girls' Club Work pursue this course. Each day, special classes for the girls in attendance will be held at the Department of Home Economics. For further information, address Prof. T. L. Bewick, College of Agriculture, Madison, Wis.

RURAL CHURCH AND SUMMER SCHOOL. A course of lectures, discussions, and demonstrations is held during the first two weeks of the University Summer Session. It is especially designed to be of service to town and open-country

ministers and includes the entire field of rural social and economic work. For information and circular write Prof. J. H. Kolb, College of Agriculture, Madison, Wis.

AGRICULTURAL EXPERIMENT STATION

As the Wisconsin Agricultural Experiment Station is organically associated with the College of Agriculture, members of the college faculty constitute the staff of the Station. The purpose of the Station is the promotion of agricultural science by research and experimentation, and funds for the work come from both state and federal appropriations. Each of the several departments has research continually in progress, some members of the staff devoting the major portion of their time to investigations dealing with the problems of the farmer. As far as facilities permit, the subjects selected for research are those of greatest practical importance to Wisconsin farmers.

An Agricultural Experiment Association with a paid membership of about 1,000 is maintained for the purpose of cooperating with the College and Experiment Station in advancing the agriculture of the commonwealth. 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.

The publications of the Experiment Station include an annual report and a series of popular bulletins, research bulletins, and poster bulletins. Popular bulletins, including helpful discussions on results of experiments, are issued in editions of 20,000 to 50,000 copies and are distributed free to residents of the State upon application; the research bulletins contain technical data and discussions not designed for wide distribution and are sent to libraries, investigators, etc. Apply for the popular bulletins to Noble Clark, Associate Director, Madison, Wis.

AGRICULTURAL EXTENSION SERVICE

The extension work of the College of Agriculture is organized to coordinate and extend departmental service among Wisconsin farm men and farm women, spreading and disseminating information gathered in laboratory and field plot. Under this service three lines of work are carried on:

1. Field demonstration work of the several departments.

2. The county agricultural or home demonstration agent system in which a resident instructor is located in a county.

3. Collective extension instruction given in connection with the farmers' weeks and women's schools, demonstration trains, and so on.

Through such instruction and practical demonstration many thousands of rural people who are unable to come to Madison for resident instruction are aided directly by the College. Many of the extension activities are organized on the project basis, and are partly supported by federal funds. This work is in home economics as well as in the field of agriculture. For printed matter and other information regarding this work, apply to W. W. Clark, Associate Director, Madison, Wis.

ORGANIZATIONS

Several societies maintained by the agricultural students meet frequently to discuss questions related to their special interest. These organizations are for drill in parliamentary practice and training in debate, as well as for the discussion of scientific and practical questions. The Euthenics Club is an organization of students in Home Economics to promote intellectual and social intercourse and stimulate greater interest in vital problems of the day. The Saddle and Sirloin Club is a student organization of those interested in animal husbandry and each year holds a livestock show, "The Little International," during Farmers' Week.

The Blue Shield consists of a group of students interested in rural organization work. The 4-H club is an organization composed mainly of students who have been active in 4-H club work before coming to college. The Agricultural Engineers is a student group whose major interest consists of problems related to the field of agricultural engineering. The Collegiate Future Farmers of America comprises mainly former F.F.A. members and those who are majoring in agricultural extension.

A chapter of the national honorary agricultural fraternity, Alpha Zeta, and a chapter of the national honorary home economics sorority, Omicron Nu, are maintained by faculty and student members. The students publish a monthly magazine, *The Country Magazine,* under the direction of the Department of Agricultural Journalism. All of the activities of these, and several other agricultural campus student organizations not mentioned here, are coordinated under the direction of the Agricultural Student Council.

ADMISSION REQUIREMENTS

The general requirements for admission are set forth in Part III of this announcement, beginning with page 34.

STUDENT EXPENSE

Fees, tuition, personal expenses, scholarships, loan funds, self-support, etc., are discussed in Part II of this announcement, beginning with page 13.

FEES AND TUITION IN SPECIAL COURSES

	Lab. Fee and Deposit	Non-resident Tuition	General Fee
Short Course—three terms of five weeks each, per term	3.75	17.22	3.34
Infirmary fee, per term			1.25
Memorial Union fee, per student			1.00
Winter Dairy Course—twelve weeks	15.00	41.33	9.50
Summer Dairy Course—five weeks	7.00	17.25	7.00

ADVANCED INDEPENDENT WORK

A student who has taken his freshman and sophomore work in Agriculture or Home Economics at the University of Wisconsin, whose grade-point average for these first two years' work is 2.6 or higher, and who is recommended by three of his sophomore instructors, may be permitted by the major division or department of his choice to pursue Advanced Independent Work during the remainder of his course. At the inception of this Advanced Independent Work,

the major devision or department shall outline for the student a five-semester plan of study, a whole or part of which is to be pursued independently of course and classroom requirements, and which shall include a thesis. Upon recommendation of the division or department and upon approval by the Graduate Office of work done on the thesis, such a student may be admitted to the Graduate School at the end of the seventh semester, thereby becoming subject to its regulations and eligible to its scholarships. The student who, at the close of the eighth semester, has met the general requirements outside the major, has passed a comprehensive examination set by the division or department and covering his last four semesters' work within the major, and is recommended by his division or department and by the College of Agriculture, shall be granted the bachelor's degree. If the program is followed during the next semester, the student who has passed a comprehensive examination set by the division or department covering his work within the major, has had his completed thesis approved by a committee of three appointed by the Graduate Office, and is recommended by his division or department and by the Graduate School, shall be granted the master's degree at the end of the ninth semester.

CURRICULA IN AGRICULTURE

Students of the Long and Middle Courses must take 16 to 18 credits each semester, except during the first semester of the freshman year, when only 15 credits are required. Electives may be added to make a total of 20 credits, provided the student has received a grade of at least B in each subject for the preceding semester. All students, including seniors, must carry at least 16 credits each semester unless excused by the Executive Committee. Before being graduated from either of these courses, the student must have had farm experience satisfactory to the department in which he majors.

THE LONG COURSE

LEADING TO THE DEGREE OF BACHELOR OF SCIENCE (AGRICULTURE) OR BACHELOR OF SCIENCE (AGRICULTURE AND EDUCATION)

The general requirement for graduation in the Long Course is 133 credits and 133 grade-points. At the beginning of the sophomore year the student chooses for his adviser a member of the department in which he expects to major.

Students in the Long Course who wish to qualify for the University Teachers' Certificate are referred to page 317 for a statement of the requirements.

FRESHMAN YEAR

First Semester	Credits	Second Semester	Credits
Engl. 1a—Freshman composition	3	Engl. 1b—Freshman composition*	3
Chem. 1a—General chemistry	5	Chem. 1b—Qualitative analysis	5
†Math. 71, 1 or 51	4	Botany 1—General botany	5
An. Husb. 1—Livestock production	3	or Zoology 1—General zoology	(5)
or Agron. 1—General farm crops	(3)	Agron. 1—General farm crops	3
Convocation	0	or An. Husb. 1—Livestock production	(3)
Physical activity requirement	0	Physical activity requirement	0
	15		16

*Students earning a grade of A in English 1a are excused from further work in freshman English.

†Students who have had three or more semesters of high-school algebra will take Mathematics 72 or 31; no credit will be given for Mathematics 71 or 1.

Students will elect animal husbandry or agronomy in the first semester and the alternative subject in the second semester. Students who are certain they wish to continue mathematics beyond the required course should elect Mathematics 1 instead of 71; students who are to major in Agricultural Engineering should choose Mathematics 51; and those who carry Mathematics 71 with success will be permitted to take Mathematics 2 if they wish to continue training in mathematics. A student who presents three or more units of high-school mathematics for entrance to the College of Agriculture may upon approval of the Executive Committee be allowed to substitute four credits of electives in lieu of the required mathematics. Majors in the technical agriculture engineering course may substitute Mechanics 3 for Botany 1. Majors in Landscape Gardening may substitute Art Education 50 for Animal Husbandry 1 and Topographical Engineering 107 for Mathematics 71, 1 or 51; and Agricultural Economics 117 for Agricultural Economics 1.

SOPHOMORE YEAR

First Semester	Credits	Second Semester	Credits
Agr. Bact. 1—General survey	4	Agr. Econ. 1—Prin. of agr. economics	3
*Soils 1—Soils and soil fertility	4	Agricultural option	3
Econ. 1a—General economics	4	Biochemistry 1—Elem. of biochem.	4
Agricultural option	3	**Botany 146, Physiology 3	4
Electives	1-7	Electives	1-8
	16-18		16-18

*Either Soils 1, 4 cr., or Biochem. 1, 5 cr. must be taken.

**Students in the following majors may take the following subjects instead of Botany 146 or Physiology 3:

Agricultural Economics, Dairy Industry—Economics 1b.
Agricultural Journalism—Rural Sociology 25.
Agricultural Engineering—Advanced Mathematics.
Agricultural Education—Three credits in the Department of Education.
Horticulture—Landscape majors—Plant Pathology 101 or Rural Sociology 25.
Rural Sociology—Sociology 1.

Sophomores in the Long Course must choose two courses from the following group. Only one subject in a given department can be counted as an agricultural option in meeting this requirement, but subjects not chosen as options may later be taken as electives.

Agr. Engr. 5—Power and machinery	5	Agr. Engr. 1—Surveys and structures	4
Hort. 1—Principles of fruit growing	3	Dairy Ind. 1—Introduction to dairying	3
Poultry 1—Poultry raising	3	Hort. 3—Vegetable gardening	3
Vet. Sci. 1—The animal body	3	Econ. Ent. 1—Farm insects	3

During the junior and senior years, 16-18 credits of major and elective work must be carried each semester.

Each student shall complete a minimum of 50 credits in the College of Agriculture, including required agricultural courses, options, majors, and electives. Courses taken outside the College as a part of the major do not count as a portion of the 50 credit requirement. Courses taught in departments outside the College of Agriculture even though listed in departments of the College of Agriculture do not count as part of the 50 required credits in the College of Agriculture. Courses given by staff members of the Forest Products Laboratory, approved by the Faculty of the College of Agriculture, shall be counted as agriculture.

A minimum of twenty elective credits must be taken outside the College of Agriculture, preferably during the junior and senior years.

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

Credit in Education 75 may be counted toward graduation only by those students who complete the requirements for the University Teachers' Certificate.

The major consists of a minimum of 15 elective credits in a department. Not more than 5 credits in certain courses outside the given department may be substituted for an equivalent number of credits within the major department if reported in advance to the faculty. In case a student is interested in a line of endeavor involving more than one department, he may elect as a major study a minimum of 25 elective credits of suitably related work in two or more departments. In the latter case the program must have the approval of the Executive Committee not later than the middle of the junior year. In either of the above cases, not more than 25 elective credits in any one department may count toward graduation.

A thesis, if required, must represent some phase of the student's work in the field of his major, and must consist of 4 credits.

In the course in Agriculture a student becomes a sophomore upon the completion of 26 credits and 26 grade-points; a junior upon the completion of 60 credits and 60 grade-points; and a senior upon the completion of 95 credits and 95 grade-points. A student who does not earn at least one grade-point per credit during the last two semesters of residence will not be recommended for a degree.

THE MIDDLE COURSE

LEADING TO THE TITLE OF GRADUATE IN AGRICULTURE

This course is designed to meet the needs of students who have had a high-choool training but who cannot spend more than two years at the University. Requirements for admission are the same as for the Long Course.

The total requirements for graduation in the Middle Course are 64 credits and 64 grade-points. All Middle Course students are required to take convocation and one year of physical training, military science, or band instruction. Students who elect Military Science must carry the work for two years. For the satisfactory completion of two years of work in Military Science, the student will receive four scholastic credits.

A maximum of ten elective credits may be taken outside the College of Agriculture. Subjects of the Long Course taken in the College of Letters and Science and not required in the Middle Course are considered electives outside the College of Agriculture.

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.

This course gives the maximum opportunity for choosing work for a vocational objective. Students should have an objective in mind when entering the course and plan their work so prerequisites may be taken for all courses desired. Early in the first semester the Assistant Dean should be consulted concerning objectives and future courses desired. Dairy manufacturing, poultry, animal husbandry, horticulture, or farm crops are usual fields of specialization, but others may be made.

FRESHMAN YEAR

First Semester	Credits	Second Semester	Credits
English 1a—Freshman composition	3	Engl. 1b—Freshman composition	3
Chemistry 1a—General chemistry	5	Chemistry 1b—Qualitative analysis	5
Electives	7	Electives	8
Convocation	0	Physical activity requirement	0
Physical activity requirement	0		
	15		16

SOPHOMORE YEAR

Electives	16-18	Electives	16-18

PRE-FORESTRY TRAINING

The pre-forestry work has been arranged to permit Wisconsin students who plan a professional training in forestry to attend the University of Wisconsin for two years, later transferring for the balance of the course to any one of the several institutions in other states which offer a degree in forestry.

The courses listed below are basic to the forestry work and correspond closely to the requirements of the forestry courses offered by other institutions. It is impossible to plan a course at one institution which exactly parallels that offered at another. However, little or no handicap in finishing the forestry work at another institution should be imposed upon students who complete the following two years of work. Students carrying this work should choose early in the second semester of the sophomore year the institution to which they intend to transfer, so that arangements can be made for attending the summer forestry camp. Virtually all institutions offering a degree in forestry require that summer camp instructions be completed before the junior year.

FRESHMAN YEAR

First Semester	Credits	Second Semester	Credits
English 1a—Freshman composition	3	English 1b—Freshman composition	3
Chemistry 1a—General chemistry	5	Chemistry 1b—Qualitative analysis	5
Agronomy 1	3	Botany 1	5
Mathematics 1 or 2	4	Econ. Entomology 1	3
Convocation	0	Elective	0-2
Physical activity requirement	0	Physical activity requirement	0
	15		16-18

SOPHOMORE YEAR

Soils 1	4	Biochemistry 1	3
Geology 1	5	Botany 130	3
Agr. Bact. 1	4	Botany 131	2
Drawing 1	3	Top. Engr. 108	3
Electives	0-2	Electives	5-7
	16-18		16-18

Electives should be chosen from the following: Math. 2, Econ. Ent. 102, Bot. 146, or Animal Husbandry 1.

PRE-VETERINARY TRAINING

Colleges of veterinary medicine confer the degree Doctor of Veterinary Medicine after the student has completed four years of professional work.

Many of the leading veterinary colleges, now require applicants for admission to present at least one year of college work to equip them better for the more highly specialized veterinary studies.

In order to give residents of Wisconsin an opportunity to secure at the University of Wisconsin a year of college work to qualify them for entrance in a veterinary college, the College of Agriculture offers the following pre-veterinary work. Satisfactory completion of these studies will enable the student to satisfy the entrance requirements at any veterinary college.

FRESHMAN YEAR

First Semester	Credits	Second Semester	Credits
English 1a—Freshman composition	3	English 1b—Freshman composition	3
Chemistry 1a—General chemistry	5	Chemistry 1b—Qualitative analysis	5
Zoology 1	5	Animal Husbandry 1	3
*Electives	3 or 4	*Electives	5 or 6
Convocation	0	Physical activity requirement	0
Physical activity requirement	0		
	16-17		16-17

*It is suggested that the electives selected be German, French, history, zoology, mathematics, or physics.

CURRICULA IN HOME ECONOMICS

LEADING TO THE DEGREE OF BACHELOR OF SCIENCE (HOME ECONOMICS) OR BACHELOR OF SCIENCE (HOME ECONOMICS AND EDUCATION)

ABBY L. MARLATT, DIRECTOR, PROFESSOR OF HOME ECONOMICS

The Departments of Home Economics offer courses dealing with the principles underlying the proper management of the home, the care of children, the hygienic and sanitary conduct of institutions, and the economic conditions affecting the work of women in business allied to the house, textiles and clothing, and the training of the pre-school child. The courses are planned to meet the needs of four classes of students:

1. Those who desire a general knowledge of the subject matter of home economics as part of a general education. A wide range of electives in Letters and Science is possible in the general course. Home Economics may also be taken as a minor with the major leading to a B.A. degree.

2. Those who desire to make a detailed study of home economics in preparation for a professional career other than teaching.

3. Those who wish to teach home economics in secondary schools, vocational schools, extension courses, and institutions of higher learning.

4. Graduate students who have the requisite knowledge to benefit by research work in subjects connected with the home.

GENERAL REQUIREMENTS

The degree of Bachelor of Science, Home Economics Course, is conferred upon those who complete a four- or five-year major in home economics. A total of 124 credits and 124 grade-points is required for graduation. One year of physical education is also required. Sixteen credits exclusive of physical

education may be elected each semester, with the privilege of increasing to 18 credits provided the student has received a grade of B or higher in each subject for the preceding semester. All students, including seniors, must elect a schedule of at least 14 credits each semester, unless given permission by the Executive Committee to carry a reduced schedule.

Certain foreign language requirements must be met in the foods, related art, nursing, applied bacteriology, and non-professional majors. There are no language requirements in the clothing and textile major, in the journalism major, or in the general professional major for those students who are qualifying for a teachers' certificate.

For those majors in which foreign language is required, at least 8 credits beyond freshman courses must be carried, except those entering with 4 high-school units in one language or a total of 5 units in two languages. Students in their majors entering with 2 or more units of a foreign language are expected to continue that language for 8 credits, but such students desiring to change to another language or those entering with less than 2 units are required to take 16 credits in one foreign language, the first 8 credits of which are counted as electives.

Students in all Home Economics majors in which language is required are given the opportunity of taking the intermediate attainment test, the passing of which will absolve the student from further language requirements, or the language requirement may be met by carrying course work.

In the Course in Home Economics a student must have at least 25 grade-points and 25 credits before she may become a sophomore, at least, 58 grade-points and 58 credits before she may become a junior, and at least 88 grade-points and 88 credits before she may become a senior.

A student who does not earn at least one grade-point per credit during the last two semesters of residence will not be recommended for a degree.

All students entering the College of Agriculture with advanced standing of two or more credits in Home Economics are not required to take Home Economics 9, 1 credit.

A student given partial credit by the Advanced Standing Committee in any required subject, and who shall complete a more advanced required course in some other department for which the partially credited course is a prerequisite, shall be permitted to substitute electives to make up deficiencies in credits in the required course.

Students earning a grade of A in English 1a are excused from further work in freshman English.

MAJORS

The requirements for a major in Home Economics are not less than 18 nor more than 40 credits in strictly home economics subjects. A minimum of 12 credits or a maximum of 32 in strictly home economics subjects, inclusive of the thesis, may be taken during the junior and senior years. Home Economics 2, 9, and 109 are general courses in art and on the family, required of all candidates for the degree of B.S. in Home Economics or B.S. in Home Economics and Education. In addition to these, not more than 40 credits in Home Economics subjects may be counted toward the graduation requirements for either degree. Home Economics 52, 53, and 158 are courses in Educational Methods and are not counted as Home Economics. Home Economics 52 is the only one of this group which will be accepted as a part of the 18 credits of required work in Education.

The majors which lead to professional work in the field of home economics are: (1) teaching of home economics, (2) food major—either hospital dietitian

or institutional management, (3) textile major, (4) applied bacteriology major, (5) nursing or hospital administration major, (6) major in related art, (7) home economics journalism major. Students will chose their major line of work at the beginning of the junior year and will be assigned to an adviser from the major department at that time. There is also a non-professional course which allows a wide latitude in the choice of a major. See below.

THESIS

All candidates for a degree are permitted to present a thesis as an honor. A thesis 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. Those senior students who do not present a thesis shall, in lieu thereof, elect courses other than home economics totaling from 4 to 5 credits from a list selected by the department heads and approved by the Home Economics faculty.

MINORS FOR LETTERS AND SCIENCE STUDENTS

A minor in Home Economics is not less than 10 nor more than 20 credits in home economics subjects. The following may be elected:

(1) A minor in foods shall consist of Home Economics 3, 3 credits; Home Economics 4, 3 credits; Home Economics 1a, 4 credits or Home Economics 6, 4 credits, a total of 10 credits.

(2) The minor in clothing and textiles must include Home Economics 2, 5, 10, 11, and other courses to complete 10 credits. The textile teaching minor may include courses 2, 5, 10, 11, 50, 97, 52, 53, and other vocational and related courses to make 20 credits.

(3) The minor in related art is intended to be taken by home economics general majors, majors in home economics journalism, and majors in art education or in other schools. A minor in related art must include courses elected from the following list to complete at least 10 credits: Home Economics 2, 8, 18, 20, 94, 95, 114, 116, 121, 194. A suggested sequence of courses for teaching majors is 8, 18, 20, 95, 194.

NON-PROFESSIONAL MAJOR IN HOME ECONOMICS

This major is planned for students who do not wish to be trained in the professional home economics majors, and therefore is less severely technical and allows a more liberal choice of electives. Science requirements and required credits in home economics are greatly reduced; but, on the other hand, a student may elect much more freely in any college after she has taken certain fundamental home economics subjects.

The same number of credits are required for graduation in the Non-Professional Course in Home Economics as for the other majors in Home Economics. Students are expected to secure 14 to 16 credits per semester, making an average of 30 credits per year, or 124 credits and 124 grade-points for the course. In addition the student is required to take physical education during the first year, and convocation is required for the first half of the first semester of the freshman year.

From 52 to 62 credits may be chosen by the student in any college in addition to the 10 credits which she is required to elect in the College of Letters and Science. Not more than 22 of these credits may be elected in home economics

subjects, such election being dependent on having selected the necessary prerequisites. It is wise to select electives with a definite goal in mind so that at graduation intensive study will have been made in some one subject or related subjects. *This is not a teaching major.*

It is desirable that the student plan the electives with her faculty adviser as early as possible in the sophomore year.

The required work of this non-professional major is as follows:

FRESHMAN YEAR

First Semester	Credits	Second Semester	Credits
Engl. 1a—Freshman composition	3	Engl. 1b—Freshman composition	3
Foreign language (second year)	4	Foreign language (second year)	4
Chem. 1a—General chemistry	5	Chem. 1b—General chemistry	5
Home Econ. 9—Introduction to home economics	1	Home Econ. 3—Introduction to food study	3
Home Econ. 3—Introduction to related art	3	Physical education	0
Convocation	0		
Physical education	0		
	16		15

SOPHOMORE YEAR

Engl. 30 or 33—English literature	3-2	Electives	16
Home Econ. 5—Introduction to textile study	3*		
Electives	10		
	15-16		16

*In place of Home Economics 5 for 3 credits, a student may take Home Economics 5 for 2 credits and Home Economics 50 for 3 credits.

In addition to 10 credits in chemistry, 4 to 6 credits of other science are required during the freshman and sophomore years, to be selected from the list below. Upon approval of the Executive Committee a student may substitute one of these optional sciences for Chemistry 1b.

Agr. Bact. 4—Household bacteriology	4	Physics 61—General physics	5
Biochemistry 3—Food biochemistry	4	Physiol. 1—Elements of human physiology	4

JUNIOR YEAR

Home Econ. 7—Housing and sanitation	3	Electives	16
Electives	12		
	15		16

SENIOR YEAR

Home Econ. thesis or elective	2	Home Econ. thesis or elective	2
Home Econ. 110—Household administration	2	Home Econ. 109—Humanics	4
Home Econ. 112—Household admin. lab.	2	Electives	10
Electives	9		
	15		16

SUGGESTED ELECTIVES IN NON-PROFESSIONAL MAJOR

Non-professional majors interested in becoming costume designers, interior decorators, or textile designers should, in addition to the fundamental courses offered in Home Economics, avail themselves of the opportunities offered in the Department of Art History and Art Education. In the latter 10 credits constitute a minor.

If the student takes added courses in English and in Agricultural Journalism with selected electives in home economics, the field of home economics journalism or free lance writing offers possibilities to the student in the non-professional major.

Housing management is a newly developing field, calling for women capable of managing groups of residential housing units. Training is necessary in the social and economic background of housing and the management of groups of people, in the technical aspects of caring for dwellings and in the legal relationships involved. In addition to the required courses of the non-professional major, the student should elect from the following list, including all of the starred courses:

SOPHOMORE YEAR

*Economics 1a and 1b, General Economics, I, II, 8 credits
*Sociology 1 and 2, Introductory Sociology, I, II, 6 credits

JUNIOR AND SENIOR YEARS

*Home Economics 8 and 18, House Decoration, I or II, 4 credits
*Psychology 1, Introduction to Psychology, I or II, 3 credits
City Planning 101, City Planning, I or II, 2 credits
or
Economics 192, Rural Regional Planning, II, 2-3 credits
Horticulture 6, Principles of Landscape Design, I, 3 credits
Economics 117, Outlines of Land Economics, I, 3 credits
*Economics 179, Urban Land Economics, II, 3 credits
Economics 121, Property Insurance, II, 2 credits
Economics 122, Labor Problems, I, 3 credits
Sociology 139, Social Psychology, I, 3 credits
Real Property (1st year Law), II, 2 credits
Sociology 148, Introduction to Group Work, I, 3 credits
Total starred electives, 23-24 credits
Science electives, 4-6 credits
Free electives, including 21-22 credits of suggested electives other than those starred, 40-48 credits

PROFESSIONAL MAJORS IN HOME ECONOMICS

The professional majors are seven in number and are as follows:

1. The general professional major (see below) may be taken as a teaching major for secondary or vocational schools, for home economics extension, general home economics commercial consultant, and for all professional types of work where foods, clothing and textiles, household administration, etc., are needed as a preparation

2. Professional majors in foods (see page 318) leading to positions as hospital dietitians or in institutional management

3. Clothing and Textiles (see page 320)

4. Related Art (see page 320)
5. Applied Bacteriology (see page 319)
6. Nursing or Hospital Administration (see page 322)
7. Home Economics Journalism (see page 321)

These majors are technical in nature with a large background of science and economics. The first two years are common to all professional majors except for the addition of Agr. Journ. 8 and Home Economics 20 in the sophomore year of the home economics journalism major and are as follows:

FRESHMAN YEAR

First Semester	Credits	Second Semester	Credits
Engl. 1a—Freshman composition	3	Engl. 1b—Freshman composition	3
Foreign language (second year) or elective	4	Foreign language (second year) or elective	4
Chem. 1a—General chemistry	5	Chem. 1b—General chemistry	5
Home Econ. 9—Introduction to home economics	1	Home Econ. 3—Introduction to food study	3
Home Econ. 2—Intro. to related art	3	Physical education	0
Convocation	0		
Physical education	0		
	16		15

SOPHOMORE YEAR

Home Econ. 5—Intro. to textile study	2	**Physics 61—General physics	5
Biochemistry 3—Food biochemistry	4	Home Econ. 50—Textiles	3
*Physiol. 1—Elements of physiology	4	Agr. Bact. 4—General survey	4
Electives (Econ. 1a recommended)	6	Electives	3
	16		15

*Five-year nursing course majors should substitute Physiology 4.
**Physics 63—3 cr. each semester, may be substituted.

GENERAL PROFESSIONAL MAJOR

The junior and senior years of this major offer the possibilities of 31-35 elective credits if the high-school language is continued so that the selected phase may be easily followed giving in four years 40-44 free electives out of the 124 credits required for the Bachelor of Science degree. This major may be taken as a general education, or directed toward teaching, extension commercial work, social welfare, etc. The requirements of the junior and senior years are as follows:

JUNIOR YEAR

Home Econ. 4—Problems of food suply	3	Home Econ. 6—Nutrition and dietetics	4
Home Econ. 7—Housing and sanitation	3	Home Econ. 8—House decoration	2
Home Econ. 10—Clothing economics	2	Home Econ. 11—Problems in applied dress design	3
Home Econ. 20—Costume appreciation and selection	2	Electives	7
Electives	5		
	15		16

SENIOR YEAR

Home Econ. 110, 112—Household administration	4	Home Econ. 109—Humanics	4
Home Econ. thesis or elective	2	Home Econ. thesis or elective	2
Electives	10	Electives	10
	16		16

TEACHING HOME ECONOMICS IN HIGH SCHOOLS AND GRADES. For the high-school teaching major in home economics a total of 124 credits and 124 grade-points is required for graduation. It is desirable that electives be grouped for a definite purpose such as a teaching minor in addition to the home economics teaching major. Teaching minors may be chosen in the various departments as discussed in the University catalog. A minor varies from 10 to 20 credits of work chosen for a distinct purpose in a single department. The following minors have proved very satisfactory in connection with a home economics teaching major: chemistry, bacteriology, English, mathematics, modern language, history, Latin, botany, biology, physiology, physics, sociology, journalism, education. Students in the sophomore year should discuss the matter of majors in home economics and minors in other departments with their faculty advisers.

REQUIREMENTS FOR TEACHERS' CERTIFICATES. Students receiving the degree in the home economics professional major and taking the required work in education will receive the degree of Bachelor of Science (Home Economics and Education) and will be entitled to receive the University Teachers' Certificate upon recommendation of fitness by the Department of Home Economics and upon completing as a part of their elective work the following courses: Education 75, Psychology and practice of teaching, 5 credits; Home Economics 52, Departmental teachers' course, 5 credits; Education 31, Principles of education, 3 credits; electives in the Department of Education, 5 credits; making a total of 18 credits. Home Economics 53, Clothing methods, is also required of all candidates for the University Teachers' Certificate who are planning to teach clothing but may not count in the required 18 credits in education.

Students entering with advanced standing in Home Economics 52 must take Home Economics 158; credit in Home Economics 52 is required of all. Education 75 may be taken only by those registered for the Teachers' Certificate, and credits in Education 75 are not counted toward the graduation requirements for the B.S. in Home Economics degree, but are counted toward the requirements for the B.S. in Home Economics and Education degree. Persons not desiring to qualify for a Teachers' Certificate but wishing a general course in home economics may omit the teacher training courses.

Students desiring to qualify for the University Teachers' Certificate should register with the Dean of the School of Education during the first semester of the junior year. They will find it advantageous to select an additional subject in which they may qualify under the head of a minor, so that if they are placed in small high schools they will be equipped to teach not only their major subject of home economics, but also a minor subject. The selection of a minor should be made as early in the course as possible so that the free electives may be utilized to the best advantage.

VOCATIONAL SCHOOL CERTIFICATE. Upon completion of a course of training in a professional major, including the 18 credits for the teachers' certificate and summer school courses in vocational education, and upon recommendation of fitness by the Department of Home Economics, the student will be certified to the State Board of Vocational Education, which, on approval of the student's record, will issue a certificate as instructor in vocational courses in homemaking.

In addition to the four-year course, the candidate for the teachers' certificate in vocational education is expected to have practical experience in house management; therefore, between the junior and senior years the student should spend the vacation period in practical home management, reporting details of the work to the instructor in charge of the household administration class. Study of standards is provided at the practice cottage, which is a laboratory in connection with the Home Economics Department.

Extension in Home Economics. The extension major in home economics follows the general plan of the teaching major, substituting for the required courses in education electives in psychology, rural sociology, agricultural journalism, horticulture and agricultural economics.

A suggested minor in agriculture is as follows: 10 credits to be chosen from Agricultural Economics 25, 126; Agricultural Journalism 8, 111; Horticulture 8; Agricultural Education 5; Economic Entomology 1; Poultry Husbandry 1.

Commercial Consultant in General Home Economics. A commercial consultant in home economics should, during the four-year professional course in home economics, take Home Economics 126 and at least 10 electives concentrated in the Departments of Economics, Sociology or Journalism to prepare for work with public utilities, food companies, or women's page editor on newspapers.

Social Welfare Work. If a home economics graduate plans to enter social welfare work, then while taking the general professional major in home economics, she should elect a minor in sociology which includes Economics 1a and two courses from each of the following groups to make a total of 15 credits:

Group A—Sociology 1, 139, 141, 147.
Group B—Sociology 46, 148, 164, or 165.

MAJOR IN FOOD AND NUTRITION

The major in food and nutrition is planned to meet the demands for trained dietitians in hospitals, county relief nutrition service, child health workers in social welfare associations, consultant dietitians in medical clinics, and dietitians in university or college commons, in cafeterias, tea rooms, and public schools, and research assistants in experiment stations. The schedule for the first two years is found on page 316.

In the first semester of the junior year majors in institutional management will take Home Economics 22 for 2 credits. Hospital dietitians are advised to elect Home Economics 22 and Chemistry 20 and 21 in the first or second semester of the junior year and Home Economics 133 and Physiological Chemistry 104 in the senior year or the summer session. Those wishing to teach should elect two additional clothing courses and the required education courses in the sophomore and junior years.

JUNIOR YEAR

Home Econ. 4—Problems of food supply	3	Home Econ. 6—Nutrition and dietetics	4
Home Econ. 7—Housing and sanitation	3	Electives and Chem. 20-21	12
Electives and Chemistry 20-21 and Home Econ. 22	9		
	15		16

SENIOR YEAR

HOSPITAL DIETITIAN

Home Econ. 110, 112—Household admin.	4	Home Econ. 109—Humanics	4
Home Econ. 125—Diet therapy	3	Thesis or elective	2
Thesis or elective	2	Free electives	6
Free electives or P. Chem. 104	4	Home Econ. elective	4
Home Economics elective	2		
	15		16

INSTITUTIONAL MANAGEMENT

The institutional major elects fewer science courses and more economic and sociology courses, with applied economic work along food, marketing, and equipment studies.

Home Econ. 110, 112—Household administration	4	Home Econ. 109—Humanics	4
Home Econ. 122—Organization and administration of institutions	3	Home Econ. 133—Tea room and restaurant management	4
Thesis or elective	2	Thesis or elective	2
Electives	7	Electives	6
	16		16

MAJOR IN APPLIED BACTERIOLOGY

Students may include beyond their sophomore year see page 316, such detailed work in applied bacteriology as will equip them to become bacteriological technicians in the various laboratories maintained in connection with municipal water and sewage plants, manufactures of biological products, and milk plants, as well as with public health laboratories, hospital laboratories, private laboratories, in physicians' offices, and in laboratories in connection with public and private sanatoria. There is a demand for such technicians, and many of the home economics graduates have found the work both attractive and stimulating. The major consists of a minimum of 19 credits, including the required course in bacteriology and the thesis. Electives may be chosen from the following:

Agr. Bact. 125—Food bacteriology	3	Agr. Bact. 121—Dairy bacteriology	3
Agr. Bact. 100—Thesis	2	Agr. Bact. 126—Physiology of bacteria	3
Agr. Bact. 200—Research	2	Agr. Bact. 100—Thesis	2
Agr. Bact. 231—Seminary	1	Agr. Bact. 200—Research	2
Path. 102—Medical bacteriology	5	Agr. Bact. 231—Seminary	1
Zool. 111—Micro-technique	3	Vet. Science 126—Infection and immunity	3
		Zool. 119—Animal parasites	3

JUNIOR YEAR

Home Econ. 4—Problems of food supply	3	Home Econ. 6—Nutrition and dietetics	4
Home Econ. 7—Housing and sanitation	3	Electives	12
Electives	10		
	16		16

SENIOR YEAR

Home Econ. 110, 112—Household administration	4	Home Econ. 109—Humanics	4
Thesis or elective	2	Chem. 113—Water analysis	1
Electives	10	Thesis or elective	2
		Electives	9
	16		16

MAJOR IN CLOTHING AND TEXTILES

The following schedule in the major in clothing and textiles is planned to meet the needs of the student who expects to teach clothing and textiles. Students who elect a minor in sociology may prepare themselves for social work and those wishing to go into store work may elect courses in economics and salesmanship which will fit them for such positions. Those preparing for costume design work should take added courses in fine and applied arts and history.

Students planning to teach should take Home Economics 1a or Home Economics 6 for 4 credits in addition to Home Economics 3 and 4 to prepare for general home economics teaching.

Home Economics electives are to be selected from the following courses: 20, 104, 106.

JUNIOR YEAR

Home Econ. 7—Housing and sanitation	3	Home Econ. 8—House decoration	2
Home Econ. 10—Clothing economics	2	Home Econ. 18—House decoration lab.	2
Electives	10	Home Econ. 11—Problems in applied dress design	3
		Electives	8
	15		15

SENIOR YEAR

Home Econ. 110, 112—Household admin.	4	Home Econ. 109—Humanics	4
Home Econ. 53—Clothing methods	2	Home Economics electives	2
Thesis or elective	2	Thesis or elective	2
Home Econ. 97—Adv. problems in applied dress design	2	Free electives	8
Free electives	6		
	16		16

MAJOR IN RELATED ART

The related art major includes courses in house furnishing, costume design, decorative textiles, clothing and foods. It gives preliminary training for commercial positions as advisers in home furnishing departments, as editors of women's sections in magazines and papers, as professional costume designers (after further art training), and as interior decorators and furnishers. *This is not a teaching major for grades or high schools.*

Students preparing for editorial work should elect a journalism minor; those preparing for professional costume designing should elect additional courses in clothing and in art education; and those preparing for interior decorating and house furnishing work should elect Home Econ. 114, Studies and practice in interior decorating and furnishing, 4 credits.

All students in this major should elect 10 credits in Art Education.

SOPHOMORE YEAR

Biochemistry 3	4	—or—	Physics 61 or Agr. Bact. 4	5-4
Physiol. 1—Elements of physiology	4		Home Econ. 20—Costume appreciation and selection	2
Home Econ. 5—Intro. to textile study	2-3		Electives*	8-9
Electives*	9			
	16			15

JUNIOR YEAR

Home Econ. 7—Housing and sanitation	3		Home Econ. 8—House decoration lect.	2
Home Econ. 95—Hand loom weaving	2		Home Econ. 18—House decoration lab.	2
Electives*	11		Home Econ. 94—Decorative textiles	3
			Electives*	8
	16			15

SENIOR YEAR

Home Econ. 110—Household admin.	2		Home Econ. 109—Humanics	4
Home Econ. 112—Household admin. lab.	2		Home Econ. 100 or sub.	2
Home Econ. 100 or sub.	2		Electives in major**	4
Elective in major**	2		Electives*	5
Electives*	8			
	16			15

*Home Economics required elective credits (3-4) from the following: Home Economics 1a for 3-4 credits, Home Economics 11 for 3 credits, or Home Economics 50 for 3 credits. Letters and Science credits (14) must be elected from the following departments: English, Language, Comparative Literature, History, Art History, Psychology, Sociology or Economics. Ten credits in selected courses in Art Education are suggested. 29 credits are free electives and may be taken in any department outside of Home Economics.

**Major courses Home Econ. 114, 116, 118S, 121, 180, 194, 216.

MAJOR IN HOME ECONOMICS JOURNALISM

A major in the field of home economics journalism is arranged for those in the professional major. Non-professional majors may also elect from the group after their first two years. Care must be taken to elect the appropriate prerequisites.

Requirements in the freshman year are identical with those of other professional majors. In the sophomore year in addition students will take Agricultural Journalism 8 and Home Economics 20 as required work.

JUNIOR YEAR

Home Econ. 1a—Elementary dietetics	4	—or—	Home Econ. 6—Nutrition and dietetics	4
Home Econ. 7—Housing and sanitation	3		Agr. Journ. 111—Home economics feature writing	2
Home Econ. 10—Clothing economics	2		Home Econ. 8—House decoration lect.	2
Journ. 2—Reporting	3		Electives	8-12
Home Econ. 4—Problems of food supply	3			
Electives	1-5			
	16			16

SENIOR YEAR

Home Econ. 110—Household admin.	2		Journ. 123—Women's dept.	2
Home Econ. 112—Household admin. lab.	2		Agr. Journ. 103—Publicity methods	2
Home Econ 126—Extension course	2		Home Econ. 109—Humanics	4
Journ. 3—Copy editing	3		Electives	8
Electives	7			
	16			16

Students in this major are urged to use their electives in Economics and Sociology.

NURSING OR HOSPITAL ADMINISTRATION MAJOR

The five-year combined course in home economics and nursing leads to the degree of Bachelor of Science, Hospital Administration, and to the Certificate of Graduate Nurse. The following specific requirements must be satisfactorily met:

Completion of the required work of the freshman and sophomore years of the professional major in Home Economics, as outlined in the Home Economics bulletin.

Completion of the following additional courses:

JUNIOR YEAR

Home Econ. 7—Housing and sanitation	3	Home Econ. 6—Nursing and dietetics	4
Home Econ. 22—Marketing and large quantity cookery	2	Home Econ. 133—Tea room and cafeteria management	4
English 33a—Introduction to English literature	2	English 33b—Introduction to English literature	2
Electives	9	Dietetics 1 or equivalent	2
		Nursing 1	3
	16		15

Either Anatomy 120 or Physiology 4 must be elected during the junior year; Thesis, 4 credits, in the senior year.

Electives sufficient to bring the total credits of work required by the Department of Home Economics up to 94, including thesis. Twenty-seven months of resident professional instruction in nursing.

A total of 129 credits and 129 grade-points, including 94 required by the Department of Home Economics and 35 earned during the period of resident professional instruction.

RESIDENT PROFESSIONAL INSTRUCTION

The resident professional instruction consists of 27 months in residence in the Nurses' Dormitory. During this period the student has instruction in Medicine, Surgery, and Principles of Nursing, Ward Practice in wards and out-patient departments of the Hospital, and practical experience in public health nursing. The resident instruction is divided into four half-years of academic and professional education and three additional months of special training. The semester work is arranged in the following sequence:

First Semester	Credits	Second Semester	Credits
Therapeutics 1	3	Medicine and Surgery 4	2
Medicine and Surgery 1	4	Medicine and Surgery 2	4
Nursing 2	2	Nursing 3	2
	9		8
Ward Practice—36 hours per week		Ward Practice—36 hours per week	
Third Semester		**Fourth Semester**	
Medicine and Surgery 5	2	Medicine and Surgery 3	3
Medicine and Surgery 6	2	Medicine and Surgery 7	2
Nursing 4	2	Education 47	3
Nursing 5	4		
	10		8
Ward Practice—42 hours per week		Ward Practice—44 hours per week	

DEPARTMENTS OF INSTRUCTION

Abbreviations used in the announcement of courses:

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

Courses numbered from 1 through 100 are open for credit to undergraduates only; from 101 to 199 to both undergraduates and graduates; over 200 to graduates only, or very exceptionally to advanced undergraduates.

In some instances a course may be offered in more than one department within the College of Agriculture and in departments of other colleges. In such cases the course is duplicated in the numerical listing of courses in those departments; likewise in some instances the name of the instructor is also duplicated in the faculty list following the departmental heading.

AGRICULTURAL BACTERIOLOGY

EDWIN GEORGE HASTINGS, M.S., *Professor of Agricultural Bacteriology, Chairman*
IRA LAWRENCE BALDWIN, Ph.D., *Professor of Agricultural Bacteriology*
WILLIAM CARROLL FRAZIER, Ph.D., *Professor of Agricultural Bacteriology*
EDWIN BROUN FRED, Ph.D., *Professor of Agricultural Bacteriology*
WILLIAM BOWEN SARLES, Ph.D., *Associate Professor of Agricultural Bacteriology*
ELIZABETH MCCOY, Ph.D., *Assistant Professor of Agricultural Bacteriology*
PERRY WILLIAM WILSON, Ph.D., *Assistant Professor of Agricultural Bacteriology*
MILDRED AMANDA ENGELBRECHT, Ph.D., *Instructor in Agricultural Bacteriology*

Students majoring in this department may take Medical Bacteriology 102 or 104 or Veterinary Science 126, and count five of these credits toward the major requirement.

1. GENERAL SURVEY OF BACTERIOLOGY. I; 4 cr. The relation of micro-organisms to soil fertility, to animal diseases, and to foods. Prerequisite: Chemistry 1a. Required of all agricultural students. Lab. fee $4.50. Mr. Baldwin, Mr. Sarles.

2. GENERAL SURVEY. II; 4 cr. The relation of micro-organisms to water, foods, sewage disposal, and industrial processes. For chemistry course students. Prerequisite: Chemistry 1b. Lab. fee $4.50. Mr. Wilson.

4. GENERAL SURVEY. II; 4 cr. Survey of bacteriology with special emphasis on the relation of micro-organisms to foods and domestic sanitation. Prerequisite: Chemistry 1a. Required of students in home economics. Lab. fee $4.50. Mr. Frost, Miss Englebrecht.

100. THESIS. Yr; 2 cr. A definite problem in dairy, food, soil, or general bacteriology. Prerequisites: Agr. Bact. 1, 2, or 4, and consent of instructor. Lab. fee $2.25 per lab. cr. Staff.

121. Dairy Bacteriology. II; 3 cr. The bacteriology of milk and its products. Prerequisite: Agr. Bact. 1, 2, or 4, or Medical Bact. 102. Lab. fee $4.50. Mr. Hastings, Mr. Sarles.

123. Soil Bacteriology. I; 3 cr. The relation of micro-organisms to soil fertility. Prerequisite: Agr. Bact. 1, 2, or 4, or Medical Bact. 102. Lab. fee $4.50. Mr. Fred.

125. Food Bacteriology. I; 3 cr. The microbiology of foods and of industrial fermentations. Prerequisite: Agr. Bact. 1, 2, or 4, or Medical Bacteriology 102. Lab. fee $4.50. Mr. Frazier.

126. Physiology of Bacteria. II; 3 cr. The chemistry and physics of bacterial processes. Prerequisite: Agr. Bact. 1, 2, or 4, or Medical Bact. 102. Lab. fee $4.50. Mr. Baldwin, Mr. Sarles.

130. Determinative Bacteriology. Yr; 2-3 cr. Training in the common methods of the bacteriological laboratory. Prerequisite: Agr. Bact. 1, 2, or 4, or Medical Bact. 102. Lab. fee $2.25 per lab. cr. Miss McCoy.

200. Research. Yr; 2-5 cr. A detailed study of a definite problem in the field of agricultural bacteriology. Prerequisite: Agr. Bact. 121, 123, 124, 125, 126 or 130. Lab. fee $2.25 per lab. cr. Staff.

231. Seminary. Yr; 1 cr. The seminary work is divided into two parts. In the first part, the students majoring in the department and those in the early part of their graduate study devote one semester to the study of the classification of bacteria; the other semester, to a study of the development of bacteriology in America. In the second part, the graduate students study current problems in the fields covered by the department and report on their own research work. Part One—Mr. Hastings, Miss McCoy. Part Two—Staff.

AGRICULTURAL ECONOMICS

Asher Hobson, Ph.D., *Professor of Agricultural Economics, Chairman*
Christian Lauriths Christensen, B.S., *Professor of Agricultural Economics*
Benjamin Horace Hibbard, Ph.D., *Professor of Agricultural Economics*
Aldo Leopold, M.F., *Professor of Game Management*
Preston Essex McNall, Ph.D., *Professor of Agricultural Economics*
George Simon Wehrwein, Ph.D., *Professor of Agricultural Economics*
Don Sherman Anderson, B.S., *Associate Professor of Agricultural Economics*
Henry Harrison Bakken, M.A., *Associate Professor of Agricultural Economics*
Rudolph Knugaard Froker, M.A., *Associate Professor of Agricultural Economics*
Isaac Fults Hall, Ph.D., *Associate Professor of Agricultural Economics*
William Peter Mortenson, Ph.D., *Associate Professor of Agricultural Economics*
Walter Augustus Rowlands, B.S., *Associate Professor and Extension Specialist in Land Economics*
Walter Henry Ebling, Ph.D., *Assistant Professor of Agricultural Economics*
Henry Hensley Erdman, B.S., *Assistant Professor of Agricultural Economics*
Kenneth Herald Parsons, B.A., *Assistant Professor of Agricultural Economics*
Marvin Arnold Schaars, Ph.D., *Assistant Professor of Agricultural Economics*
Irwin Randolph Hedges, B.S., *Instructor in Agricultural Economics*

DONALD RICHARDS MITCHELL, M.S., *Instructor in Agricultural Economics*
CARL FREDERICK WEHRWEIN, Ph.D., *Instructor in Agricultural Economics*
MILES CHARLES RILEY, LL.B., *Lecturer in Agricultural Economics*

The courses in agricultural economics are intended to give the students a knowledge of the economic principles which relate to the production and marketing of farm products, and to the economic conditions of the agricultural classes. As such, it is a field of general interest to all concerned with farmers and their welfare.

There are two methods of taking agricultural economics. First, it may be taken as a joint major along with work in one or more other departments, economics being recognized as a phase of farming coordinate with many other lines of inquiry; second, agricultural economics may be taken as a full major by those who decide to make it a main line of study preparatory to teaching, research or work of an economic character.

Students are advised to take Economics 1a and 1b, Agricultural Economics 1 and 8 in the sophomore year; Agricultural Economics 14, 117, 128, 155, and 179 in the junior year; and Agricultural Economics 10, 126, 127, and 152 in the senior year. This sequence gives the desired background for graduate work.

1. PRINCIPLES OF AGRICULTURAL ECONOMICS. II; 3 cr. Application of economics to agriculture. Required of all agricultural students. Prerequisite: Economics 1a. Mr. Hibbard, Mr. Parsons.

8. FARM RECORDS AND ACCOUNTS. I; 2 cr. Inventories, bookkeeping, and accounting principles as applied to farm operations. Mr. Mitchell.

10. FARM ORGANIZATION AND MANAGEMENT. II; 3 cr. Farm methods and practices as applied to business management on the farm. Prerequisite: Junior standing. Mr. Mitchell.

14. FARM BUSINESS AND LEGAL PRACTICE. II; 3 cr. Discussion of business practices and forms pertaining to farming in accordance with the law on such matters as contracts, torts, real and personal property, animals, fences, landlords and tenants, owners and croppers. Mr. Riley.

100. THESIS. Yr; 2 cr. Staff.

106. CROP AND LIVESTOCK ESTIMATING. I; 3 cr. A brief review of the major bodies of existing agricultural data together with attention to their origins and development, followed by a study of methods and problems in the field of agricultural data, particularly the work of crop and livestock estimating. Prerequisite: Senior standing or consent of instructor. Mr. Ebling, Mr. Anderson.

117. OUTLINES OF LAND ECONOMICS. I; 3 cr. Economic principles underlying the utilization and conservation of land or natural resources and the application of these principles to agricultural, forest, recreational, and urban land, and to water, power, and mineral resources. Prerequisite: Economics 1a. Mr. Wehrwein.

118. SURVEY OF GAME MANAGEMENT. II; 1 cr. Mechanism of animal populations and animal environment. History, principles and techniques of game management or cropping. An orientation course not open to freshmen and sophomores. Mr. Leopold.

126. International Trade in Agricultural Products. I; 3 cr. Review of theories of international trade and foreign exchange; history of foreign trade in agricultural products; analysis of agricultural imports and exports; agricultural price supporting measures; current international trade problems in their relation to American agriculture. Prerequisite: Economics 1a. Mr. Schaars.

127. Cooperative Marketing. I, II; 3 cr. An analysis of marketing organizations, methods and theory underlying cooperative and private enterprises. Current agricultural marketing problems together with a consideration of the economic, legal and social aspects of cooperative marketing. Governmental relations and selected phases of the cooperative movement will be considered. Prerequisite: A course in marketing or junior standing and consent of instructor. Mr. Bakken.

128. Marketing Agricultural Products. I; 3 cr. Development of agricultural marketing, services, agencies, methods; emphasis on principles and practices; price factors; commodity exchanges; current marketing problems; governmental relations; marketing costs. Prerequisite: Economics 1a. Mr. Schaars.

129. Cooperative Management Problems. I; 2 cr. A consideration of the business structure of cooperative associations engaged in commercial activities; problems involving membership relations, pooling, financing, internal control, directors' responsibilities, trade and sales practice, and administrative policies. Prerequisite: Agr. Economics 127 or consent of instructor. Mr. Hobson, Mr. Froker.

152. Farmer Movements. I; 2 cr. History of the efforts of farmers to better their economic condition by forming general, even nation-wide, organizations designed to control markets and influence legislation in the interest of fairness. Prerequisite: Econ. 1a, concurrent registration, or consent of instructor. Mr. Hibbard.

155. Prices of Agricultural Products. II; 3 cr. An analysis and interpretation of the factors affecting the prices of agricultural products, together with a study of price movements, trends, cycles and minor fluctuations. The interrelationship of price, demand and supply of various types of agricultural products. Attention given to the interpretation of materials contained in public and private outlook reports. Prerequisite: Economics 1b or Agricultural Economics 1. Mr. Mortenson.

161. Game Management Techniques. Yr; *cr. Preparation of plant, animal, and food collections; analysis of stomach and pellet contents; winter-feeding game; planting food patches and coverts; preparing reviews and bibliographies of game literature; compiling statistics and graphing data.

This course covers the skills prerequisite to individual research work under Research 200. Prerequisite: Game management 118 or consent of instructor. Mr. Leopold.

179. Urban Land Economics. II; 3 cr. Urbanization, location and structure of cities, urban land utilization, home ownership and tenacy, housing and credit, zoning, city and regional planning. Prerequisite: Economics 1a. Mr. Wehrwein.

180. Topical Work. Yr; *cr. Staff.

192. RURAL REGIONAL PLANNING. II; 3 cr. Discussions of the technique and principles of rural-regional planning and zoning, the assembling of basic data underlying a plan for a selected county or region, followed by student reports each covering a segment of the complete project. Only one credit of this course may be counted toward a major in Agricultural Economics. Open to students majoring in the department represented by the staff or the consent of the instructors. Mr. Wehrwein, Mr. Aust, Mr. Kolb.

200. RESEARCH. Yr; *cr. Cooperation and marketing, Mr. Hobson, Mr. Bakken, Mr. Froker and Mr. Schaars. Farm surveys and financial accounts in their relation to farm management, Mr. McNall and Mr. Mitchell. Cost accounting and its relation to farm management, Mr. McNall, Mr. Mitchell. History of agricultural production, Mr. Hibbard. Farmer movements, taxation and farm credit, Mr. Hibbard. Land economics and land problems, Mr. Wehrwein. Crop and livestock estimating and agricultural data, Mr. Anderson, Mr. Ebling. Agricultural prices and statistics, Mr. Mortenson. International agricultural relations, Mr. Hobson.

221. LAND INCOME. II; 3 cr. The characteristics of land as a factor of production, spatial element of land, economics of land utilization, theories of rent, principles of land valuation and taxation. Prerequisite: Graduate standing. Given in 1937-38 and in alternate years. Mr. Wehrwein.

226. SEMINARY: LAND PROBLEMS. Yr; 2 cr. Land tenure and utilization in the principle countries studied in a two-year cycle; the countries with a feudal heritage; the new countries including the United States. Prerequisite: Agricultural Economics 117, 229 or concurrent registration. Mr. Hibbard, Mr. Wehrwein.

228. SEMINARY: THEORY OF MARKETS AND MARKETING. II; 2 cr. A study of the historical development of markets from early continental fairs; the practices and customs of auctions, clearing houses, exchanges, and boards of trade; the emergence of modern sales agencies, operating under cooperative, private, and governmental initiative. Prerequisite: Graduate standing. (Given in 1938-39 and in alternate years.) Mr. Bakken.

229. SEMINARY: ADVANCED AGRICULTURAL ECONOMICS. Yr; 2 cr. The field of agricultural economics with respect to its origin and the main issues around which the thinking of those interested in agriculture revolves. Prerequisite: Graduate standing. Mr. Hibbard.

252. SEMINARY: INTERNATIONAL AGRICULTURAL RELATIONS. I; 2 cr. An examination of international agricultural organizations and institutions, and their activities, together with an analysis of national agricultural measures and their influences in the international sphere. Prerequisite: Graduate standing or consent of instructor. (Given in 1938-39 and in alternate years.) Mr. Hobson.

255. SEMINARY: PRICE ANALYSIS. II; 3 cr. The application of statistical and other methods involved in isolating and analyzing agricultural price problems. Stress will be placed on proper interpretations. Prerequisite: Economics 130 or equivalent. (Given in 1939-40 and in alternate years.) Mr. Mortenson.

AGRICULTURAL EDUCATION

JOHN AMBROSE JAMES, B.S., *Professor of Agricultural Education, Chairman*
THOMAS LYMAN BEWICK, M.S., *Professor of Agricultural Extension*
WARREN WILLIAM CLARK, M.S., *Professor of Agricultural Extension*
VINCENT EARL KIVLIN, M.S., *Professor of Agricultural Education*
WILLIS D. FREITAG, B.S., *Instructor in Agricultural Education*
HAROLD J. MORRISSEY, B.S., *Instructor in Agricultural Education*

Students in the College of Agriculture who wish to prepare for the teaching of agriculture in secondary schools must complete a major and certain elective courses in animal husbandry, poultry, dairying, agronomy, horticulture, soils, agricultural engineering, agricultural economics, and agricultural journalism as a background of agriculture and also the eighteen credits in education required for the University Teachers' Certificate as outlined below.

Some students wish a major in a department other than agricultural education and also to be prepared as teachers of vocational agriculture. In many cases this is possible. Students desiring this combination should see the chairman of the department of agricultural education early in the sophomore year. Farm experience beyond summers is necessary; the farm reared students are desired. A satisfactory scholarship record is necessary to begin teacher training preparation.

Students completing the requirements for graduation in agriculture as suggested above and qualifying for a University Teachers' Certificate will receive the degree Bachelor of Science (Agriculture and Education) and a license to teach issued by the State Superintendent of Public Instruction. Such students must (a) register for the certificate in the School of Education at the beginning of the junior year, (b) receive the recommendation of the teacher training committee of the College of Agriculture, (c) complete the following courses:

Educ. 31—Principles of secondary education	3 credits
Educ. 75—Psychology and practice of teaching	5 "
Agr. Educ. 1—Rural education	2 "
Agr. Educ. 128—Program building in vocational agriculture	3 "
Agr. Educ. 50—Teaching of agriculture	5 "

Students beginning work for a certificate may arrange their courses most satisfactorily by starting the requirements during the second semester of the sophomore year or the first semester of the junior year. Education 75 should definitely be completed before the beginning of the senior year. Credits in Education 75 may be counted toward graduation only by students who complete the requirements for the University Teachers' Certificate. During the senior year Education 31 and the courses in agricultural education are prescribed. This provides the best sequence and one which interferes least with technical subjects. Each senior spends a week each semester in a high-school vocational agricultural department.

MAJOR. Not more than 5 credits in education taken in the School of Education may count toward the major in agricultural education. These 5 credits shall in no way be counted as a portion of the 50 credits required in the strictly agricultural subjects. Course 103, 2 crs., given jointly by the Departments of Horticulture and Agronomy may be counted as a portion of the five credits of the major requirement outside the Department of Agricultural Education.

1. RURAL EDUCATION. II; 2 cr. Origin and development of vocational education for rural communities. Problems, principles, and practices of rural education. For future leaders, farmers, and teachers. Open to sophomores. Mr. James.

5. JUNIOR EXTENSION. I; 2 cr. Place of boys' and girls' clubs in rural education. Educational values, methods of organization, leadership, meetings, demonstrations, follow-up materials, exhibits and reports. For prospective extension workers and teachers. Lectures and demonstrations. Mr. Bewick.

25. RURAL LIFE. (Rural Sociology 25). I; 3 cr. Counts as part of agricultural education major. Mr. Kolb.

50. TEACHING OF AGRICULTURE. I, II; 1-5 cr. Directed teaching based upon participation in agricultural activities of the Wisconsin High School, and a vocational department of agriculture, problems of subject matter and methods of teaching. Prerequisites: Education 75 and senior standing. Mr. Kivlin, Mr. Freitag, Mr. Morrissey.

100. THESIS. Yr; 2 cr. Original work on problems of agricultural extension or teaching. Staff.

103. SEMINARY. I, II; *cr. Special problems in rural education and educational problems of county agent, demonstrator, extension workers, teachers, and rural leaders. Mr. James.

110. TRAINING COURSE FOR COUNTY AGENTS. II; 2 cr. Development and administration of county agent system. The agent's responsibilities to the federal and state governments and the community. Projects, plans for work, and county organization; relation of college specialists and local organizations. Open only to seniors and graduate students. Given 1938-39 and alternate years. Mr. Clark.

128. PROGRAM BUILDING IN VOCATIONAL AGRICULTURE. I, II; 3 cr. Factors determining the program of work, directed practice, part-time and evening schools, etc., adapted to teaching agriculture in secondary schools. Prerequisites: Agr. Educ. 1 and senior standing. Mr. James.

200. RESEARCH. Yr; *cr. Topical work relative to problems of elementary vocational, or college agricultural education; extension, county agent, or demonstration work. Mr. James, Mr. Clark.

AGRICULTURAL ENGINEERING

FLOYD WALDO DUFFEE, B.S., *Professor of Agricultural Engineering, Chairman*
FRED BENJAMIN TRENK, M.S., *Associate Professor of Agricultural Engineering (Forestry)*
STANLEY ARTHUR WITZEL, M.S., *Associate Professor of Agricultural Engineering*
OTTO REINHART ZEASMAN, B.S., *Associate Professor of Soils and Agricultural Engineering*
MAX JAMES LA ROCK, B.S., *Assistant Professor of Agricultural Engineering*
HJALMAN DIEHL BRUHN, B.S., *Instructor in Agricultural Engineering*
EUGENE CLARENCE MEYER, M.S., *Instructor in Agricultural Engineering*

The undergraduate courses in this department are service courses for students majoring in other departments, as well as the basis for advanced work of

majors in agricultural engineering, both the non-technical and the technical.

Students inclined toward engineering and desiring to return to their farms, to take positions as agricultural agents or farm managers, or to enter the farm equipment business are advised to major in non-technical engineering, which has no special requirement in mathematics. They are advised to take, in addition to their major studies, liberal electives in soils, agronomy, agricultural economics, and business methods. A major in non-technical agricultural engineering may be combined with a University Teachers' Certificate giving the legal qualifications to teach in high schools.

Those desiring to enter the more technical fields of mechanical, electrical, civil, or structural engineering as applied to agriculture, are recognized as majors in technical agricultural engineering, and are requested to consult the department chairman before or during the first semester of the freshman year so that the proper sequence of studies in mathematics, drawing, and mechanics may be followed, substituting Mathematics 51 for Mathematics 71.

Freshman entering technical agricultural engineering should inform the assistant dean prior to registration, so that he can designate an agricultural engineering staff member as adviser.

Because the College of Agriculture and the College of Engineering are on the same campus, Wisconsin is enabled to train and develop agricultural engineers, who receive bachelor's degrees in both Agriculture and Engineering. It takes five years to complete the combined courses. This curriculum is designed to train engineers with a broad agricultural background and a thorough engineering training. It is essential that an agricultural engineer should have the same basic engineering training that is required of other professional engineers; yet he must have a training in and understanding of agriculture that other professional engineers can not or will not acquire. Technical agricultural engineers are trained for the research departments of farm implement companies and the agricultural engineering departments of other colleges and universities; for managers of rural electric lines; for the design of farm structures; and for the development of drainage, irrigation and soil erosion control works.

Upon completion of four years of required work, including 50 credits in agriculture, the B.S. Agriculture degree is granted, with a B.S. degree in Civil, Mechanical, or Electrical Engineering after the fifth year, if all requirements for those degrees have been met. The curriculum for Electrical Engineering majors appears in this circular. The Civil and Mechanical Engineering schedule may be obtained from the department.

Throughout the year the majors in both technical and non-technical agricultural engineering function as a student branch of the American Society of Agricultural Engineers, and during the first semester of either the junior or senior years they take Agricultural Engineering 121.

1. Surveys and Structures. I, II; 4 cr. Surveys, plans and specifications for buildings, drainage, and sewage disposal. Leveling, chaining, subdivision of land, plane table mapping, planning fields and farmsteads, general design of farm buildings and concrete construction. Three lectures and two field or drafting periods. Optional subject for all agricultural sophomores. Lab. fee $2.25. Mr. Witzel.

5. Power and Machinery. I, II; 5 cr. Construction, operation, care, adjustment of gasoline engines, farm field machinery, light plants and water systems. Power transmission. Selection and management of machinery. Optional subject for all agricultural sophomores. Two lectures, two laboratory periods and one quiz period per week. Lab. fee $4.50. Mr. Duffee.

100. THESIS. Yr; 4 cr. Lab. fee $2.25 per lab. cr. Staff.

101. DRAINAGE DESIGN. I; 2 cr. Preliminary and final surveys and designs for farm and community drainage systems near Madison and other convenient places. Optional work is provided for those specializing in erosion control or irrigation. Field work and conferences by appointment. Prerequisite: Agr. Engr. 1 or Top. Engr. 1 and 2. Not offered 1938-39. Mr. Witzel, Mr. Zeasman.

105. FARM TRACTORS AND TRACTOR MACHINERY. II; 4 cr. Lectures and laboratory studies on the construction, operation, care, and adjustment of farm tractors, threshers, ensilage cutters, feed grinders, and tractor plows. Field laboratory work with tractors and tractor plows. Two lectures and two laboratory periods per week. Prerequisite: Agricultural Engineering 5 Lab. fee $4.50. Mr. Duffee.

106. SOIL EROSION, CAUSES AND CONTROL. I; 4 cr. Extent and kinds of erosion. Rate of water absorption and soil erodability as affected by rainfall, soil, vegetation and cultural practices. Erosion control structures, including surveys for and design of terraces, terrace outlets, and soil saving dams. Saturday forenoons reserved for field and laboratory. Joint, Soils and Agricultural Engineering. Only two credits of this course may be counted toward a major in Agricultural Engineering. Prerequisites: Soils 1 and a course in topography. Mr. Whitson, Mr. Zeasman.

121. SEMINARY. I; 1 cr. Review of current literature and studies of agricultural engineering problems. For juniors, seniors and graduate students. Mr. Duffee and staff.

180. SPECIAL PROBLEMS. I, II; *cr. Open to technical majors who have had prerequisite training for advanced work in farm machinery, farm power, farm structures, erosion control, drainage or irrigation. Lab. fee $2.25 per lab. cr. Staff.

200. RESEARCH. Yr; *cr. Agricultural engineering problems for students qualifying for advanced degrees. Lab. fee $2.25 per lab. cr. Staff.

AGRICULTURAL JOURNALISM

ANDREW WINKLE HOPKINS, B.L., *Professor of Agricultural Journalism, Chairman*
WILLIAM ALLISON SUMNER, Ph.M., *Professor of Agricultural Journalism*
GRACE LANGDON, M.A., *Instructor in Agricultural Journalism*
RUPERT HENRY RASMUSSEN, B.S., *Instructor in Agricultural Journalism*

Agriculture must be made more articulate. To render the greatest service the technically trained worker must use the printed page. The ability to write simply and understandably is invaluable to the teacher, the extension worker, and the farmer. Selling and advertising are important in the neglected half of farming—the business side. More and more farmers are coming to appreciate the need for salesmanship, sales letter writing, effective classified and display advertisement, and systematic sales campaigns.

For students returning to the farm, Agricultural Journalism 1 and 3 are suggested. For prospective teachers and extension workers, courses 1, 3 and 103 are recommended. For research workers and future college staff workers Agricultural Journalism 1 and 103 are advised.

Majors in the department will be expected to take Agricultural Journalism 1, 2, 3, 100, 103, 111 and 150. Courses in the Department of Journalism in the College of Letters and Science should be taken in addition, and not to exceed 5 credits from the following courses may count toward the major: Journalism 2, Newspaper reporting and correspondence; Journalism 3, Copy reading.

Home Economics students majoring in the department will be expected to take Agricultural Journalism 8, 103, 106, 111, and 150. The following courses in the School of Journalism should be taken and count toward the major: 2, Newspaper reporting; 3, Copy reading; 7, Community newspaper, or 123, Women's departments in newspapers and magazines.

1. WRITING FARM NEWS. I, II; 3 cr. An elementary course to help students who expect to write farm news articles for publication in the weekly or daily papers or the various farm papers. Mr. Sumner.

2. PRACTICE IN EDITING. I, II; 1 cr. The editorial, business, and circulation problems of the Wisconsin Country Magazine are analyzed and actual practice given on the magazine. Mr. Sumner.

3. AGRICULTURAL ADVERTISING. I, II; 3 cr. How to write "want ads," advertisements to sell livestock, dairy products, fruit, berries, truck, food products; how to write the business letters of the farmer; the preparation of booklets, posters, sales bills, and other mediums. Lectures and assignments for practice. Mr. Sumner.

7. THE COMMUNITY NEWSPAPER. I; 2 cr. A course for those interested in the country weekly newspaper. Prerequisites: Agricultural Journalism 1 and 2. Mr. Sumner.

8. WRITING HOME ECONOMICS NEWS. I; 3 cr. A course in the fundamentals of writing home economics material. Designed to aid teachers and extension workers in publicity and to give training to students who plan to major in Home Economics Journalism. Mr. Sumner.

100. THESIS. Yr; 2 cr. Original studies of a journalistic or advertising nature. Practical problems are investigated. Mr. Hopkins, Mr. Sumner.

103. AGRICULTURAL PUBLICITY METHODS. II; 2 cr. Outlining and finding effective methods of publicity. This course takes up the publicity campaign, the different mediums as to their advantage and use, publicity copy, exhibits, and charts. Prerequisite: Agr. Journ. 1 or 8. Mr. Hopkins.

105. WRITING AND EDITING BULLETINS. I; 2 cr. A course for those who have to use or write popular bulletins and circulars. Prerequisite: Senior or graduate standing. Given alternate years. Offered 1937-38. Miss Langdon.

111. WRITING FARM AND HOME FEATURES. II; 2 cr. A course to follow the elementary courses in writing farm and home stories. The technique of writing the longer feature stories for the farm papers and women's magazines is given primary consideration. Mr. Sumner.

150. SEMINARY. I, II; 2 cr. Mr. Sumner.

180. METHODS AND PROBLEMS. I, II; *cr. Mr. Hopkins.

200. RESEARCH. I, II; * cr. A practice problem such as confronts the county agent, scientist, publicity man, extension worker, or editor is analyzed and an effort made for a constructive solution. Advertising problems and

policies such as confront the breeder or pure-bred seed grower may be studied. Mr. Hopkins, Mr. Sumner.

AGRONOMY

OLAF SVERRE AAMODT, Ph.D., *Professor of Agronomy, Chairman*
GEORGE MCSPADDEN BRIGGS, B.S., *Professor of Agronomy*
EDMUND JOSEPH DELWICHE, M.S., *Professor of Agronomy*
LAWRENCE FREDERICK GRABER, Ph.D., *Professor of Agronomy*
BENJAMIN DONALD LEITH, B.S., *Professor of Agronomy*
ANDREW HAMILTON WRIGHT, M.S., *Professor of Agronomy*
ALDEN LESCOMBE STONE, *Associate Professor of Agronomy*
HENRY LAWRENCE AHLGREN, Ph.D., *Assistant Professor of Agronomy*
EUGENE DAVENPORT HOLDEN, M.S., *Assistant Professor of Agronomy*
NORMAN PERCY NEAL, Ph.D., *Assistant Professor of Agronomy and Genetics*
HAZEL LEE SHANDS, Ph.D., *Assistant Pofessor of Agronomy*
RUEBUSH GEORGE SHANDS. Ph.D., *Assistant Professor of Agronomy*

Not to exceed five credits from the following courses may be counted as a portion of the major requirement in Agronomy:

Soils 126, Soils 127, Pl. Path. 101, Botany 117, Botany 129, Genetics 104, Genetics 106, and Agr. Engr. 106.

1. PRINCIPLES AND PRACTICES IN CROP PRODUCTION. I, II; 3 cr. Includes a study of farm crop seeds, growth requirements, crop varieties and types, botanical relations, adaptations, cultural practices, crop improvement and studies of individual crops. Required of all agricultural students. Lab. fee $4.50. Mr. Graber.

100. THESIS. Yr; 2 cr. Investigation of some problems in agronomy. Subject should be chosen early, preferably the preceeding spring, in order to take advantage of the summer season to secure material. Lab. fee $2.25 per lab. cr. Staff.

102. PASTURES AND PASTURE PROBLEMS. I; 2 cr. Methods of establishing, maintaining, and improving pastures. A survey of pasture crops and problems with emphasis on recent developments relative to the use and improvement of grassland. Prerequisites: Agronomy 1 and preferably some courses in soils and botany. Mr. Ahlgren.

103. CROP IDENTIFICATION AND STANDARDS. I; 2 cr. A consideration of the classification, identification and standard of excellence of field, orchard and garden crops. Laboratory exercises in identification, judging and exhibiting crops. Lab. fee $2.25. Mr. Holden, Mr. J. G. Moore.

104. GRAIN CROPS. I; 3 cr. Small grain and corn varieties, types and botanical relationships, geographical distribution, uses and culture. Problems of production, grading and commercial utilization. A one-day trip to Milwaukee to visit the grain and stock exchange and cereal industries. Lab. fee $2.25. Mr. Leith, Mr. Dickson.

106. FORAGE CROPS. II; 3 cr. Growing alfalfa, clovers, soybeans, corn, and other forages with emphasis on recent developments in feed production on livestock farms. Growth habits, morphology and physiology of forages as applied to practice, with emphasis on food reserves, winter survival and other field problems. Sophomore standing. Lab. fee $2.25. Mr. Graber.

120. Seed and Weed Control. I; 3 cr. A study of the economic relations of farm seeds and weeds to profitable agriculture. Prerequisite: Agronomy 1. Lab. fee $4.50. Mr. Stone.

130. Farm Crops Breeding and Improvement. II; 2 cr. Methods and principles involved in the breeding and improvement of field crops. Production and distribution of pure seeds. The raising of pure seed on farms. Prerequisites: Agronomy 1 and Botany 1, and preferably some course in Genetics. Offered 1938-39 and in alternate years. Mr. Aamodt and staff.

131. Seminary. Yr; 1 cr. A review of current literature and studies of Agronomic problems. For seniors and graduate students. Prerequisites: Agronomy 1 and Botany 1. Mr. Aamodt and staff.

180. Special Crop Problems. Yr; * cr. Offered at Madison and the branch experiment stations. Senior standing. Lab. fee $2.25 per lab. cr. Staff.

190. Methods in Field Plot Technique and Plant Breeding. II; 3 cr. The application of biometrical methods to laboratory and field plot experiments and to the breeding and improvement of field crops. Practice in planning modes of attack on special plant breeding problems. Offered 1939-40. Prerequisites: Agronomy 1, Botany 1, and preferably some course in Genetics; senior standing. Mr. Aamodt, Mr. Torrie.

200. Research. Yr; *cr. Agronomic problems for students qualifying for advanced degrees. Given in connection with thesis or graduate study. Lab. fee $2.25 per lab. cr. Staff.

ANIMAL HUSBANDRY

George Colvin Humphrey, B.S., *Professor of Animal Husbandry, Chairman*
Gustav Bohstedt, Ph.D., *Professor of Animal Husbandry*
James Garfield Fuller, M.S., *Professor of Animal Husbandry*
Albert Edward Darlow, M.S., *Associate Professor of Animal Husbandry*
James Jerome Lacey, B.S., *Associate Professor of Animal Husbandry*
Arlie Max Mucks, B.S., *Associate Professor of Animal Husbandry*
Arthur Owen Collentine, B.S., *Assistant Professor of Animal Husbandry*
Albert Julius Cramer, B.S., *Assistant Professor of Animal Husbandry*
John Merrill Fargo, M.S., *Assistant Professor of Animal Husbandry*
Benjamin Hamilton Roche, M.S., *Assistant Professor of Animal Husbandry*
Isaac Walker Rupel, Ph.D., *Assistant Professor of Animal Husbandry*
Glen Wallace Vergeront, B.A., *Assistant Professor, in charge of Office of Farm Accounts and Dairy Records*
Roy Theodore Harris, *Instructor in Animal Husbandry*

The courses offered in this department are designed to give the student an understanding of the principles of livestock production and are intended for students going into teaching in either high school or college, and for those planning to do extension or county agent work, as well as for those who expect to take up farming. In some cases joint majors with other departments may be arranged.

Not to exceed five credits from the following courses may be counted as a portion of the major requirement in animal husbandry: Agr. Chem. 110, Genetics 103, Veterinary Science 2 and 123.

1. Livestock Production. I, II; 3 cr. Livestock survey, breed history, judging, market classification; practical problems, lectures, and laboratory exercises. Required of all agricultural students. Lab. fee $4.50. Mr. Fuller, Mr. Darlow, Mr. Fargo.

2. Livestock Management. II; 2 cr. A study of fundamental principles of practice underlying the successful management of useful farm animals. Lectures and laboratory demonstrations. Recommended especially for non-animal husbandry majors. Prerequisite: An. Husb. 1 or consent of instructor. Lab. fee $2.25. Mr. Fuller and Staff.

3. Types and Breeds of Livestock. II; 2 cr. An advanced study of types and breeds; standards of excellence for market, showyard and breeding animals, respectively; judging and selection. Prerequisite: An. Husb. 1. Not open to freshmen. Lab. fee $2.25. Mr. Darlow, Mr. Rupel.

100. Thesis. Yr; 2 cr. Lab. fee $2.25 per lab. cr. Mr. Humphrey and Staff.

125. Meat Production and Carcass Values. I; 2 cr. A study will be made of the effect of feed, type, and condition of animal on the quality, yield and value of carcasses of beef, mutton, and pork. Meat characteristics will be studied and used in judging fresh and cured cuts. The live animals from which carcasses are secured will be judged before slaughter. Prerequisite: Animal Husbandry 1. Laboratory fee: $4.50. Mr. Fargo.

126. Livestock Feeding. I; 4 cr. A study of the principles of feeding and the composition of feeds; practice in formulating rations for the various classes of livestock; evaluation of feeds and feeding practices from a study of experiments and customs. Prerequisite: Junior standing. Mr. Bohstedt, Mr. Roche.

130. Swine and Sheep Production. I; 3 cr. History of the hog and sheep industries and of the leading herds and flocks in America; breeding practices; systems and costs of production; methods of marketing; the breeding of high class purebred foundation stock. Prerequisite: An. Husb. 1. Lab. fee $2.25. Mr. Fargo, Mr. Darlow.

131. Horse and Beef Cattle Production. I; 3 cr. Development and present status of the horse and beef cattle industries; leading stud and herd owners in America; practices in breeding, production and marketing; fundamentals in the successful use of horses. Prerequisite: An. Husb. 1. Lab. fee $2.25. Mr. Fuller.

133. Dairy Cattle and Milk Production. II; 3 cr. Selection of animals for milk production and for breeding purposes. Present-day types and breed characteristics. Herd management, breeding practices, testing, record keeping, calf raising, selling of surplus breeding stock. Control measures relating to quality in commercial and special grades of milk. One-day tour to visit leading purebred herds, dairy equipment plants, and farms producing certified milk is conducted; the cost is from $4 to $5. Prerequisite: An. Husb. 1. Lab. fee $2.25. Mr. Rupel.

135. Seminary. I, II; 1 cr. Studies and discussions of research work in animal husbandry and related fields; reports on articles of interest. For advanced and graduate students. Mr. Bohstedt.

180. Special Problems. Yr; *cr. Special problems on feeding, management, selection, or breeding of livestock, including laboratory, library, or field

work with conferences and reports. These problems will be assigned by respective members of the staff. Consent of instructor required. Lab. fee $2.25 per lab. cr. Staff.

200. Research. Yr; *cr. A detailed study of a definite research problem in animal husbandry. Conferences on experimental methods. Mr. Bohstedt and Staff.

BIOCHEMISTRY

Edwin Bret Hart, B.S., *Professor of Biochemistry, Chairman*
Conrad Arnold Elvehjem, Ph.D., *Professor of Biochemistry*
Karl Paul Link, Ph.D., *Professor of Biochemistry*
William Harold Peterson, Ph.D., *Professor of Biochemistry*
Harry Steenbock, Ph.D., *Professor of Biochemistry*
William Edward Tottingham, Ph.D., *Associate Professor of Biochemistry*
Paul Horrell Phillips, Ph.D., *Assistant Professor of Biochemistry and Animal Husbandry*
Carl August Baumann, Ph.D., *Instructor and Research Associate in Biochemistry*
Marvin Joyce Johnson, Ph.D., *Instructor and Research Associate in Biochemistry and Agricultural Bacteriology*
Blanche Riising Platz, M.S., *Instructor in Biochemistry*
Frank Morgan Strong, Ph.D., *Instructor and Research Associate in Biochemistry*

The courses offered in this department are intended to give a broad view of biological chemistry useful to the general agricultural student, and to develop men fitted for instructional or experimental work in the various fields of chemical activity applied to agriculture. Courses 110 and 120 are for students desiring a more detailed knowledge of the special subjects treated and are preliminary to greater specialization. These courses should be preceded or accompanied by work in biology and organic chemistry. Physiology and bacteriology are desired prerequisites. All other advanced courses in this department are open to undergraduates and graduates who have had the necessary preliminary training.

1. Elementary Biochemistry. II; 2 or 4 cr. Introduction to the chemistry of living matter. Laboratory work includes chemical analysis of agricultural materials. Prerequisite: Chemistry 1b. Lab. fee $4.50. Mr. Elvehjem.

3. Food Biochemistry. I; 4 cr. Lectures and laboratory work on the chemistry and metabolism of the essential food constituents: carbohydrates, fats, proteins, etc. Required of all home economics students. Prerequisite: Chemistry 1b. Lab. fee $4.50. Mr. Peterson.

100. Thesis. Yr; 2 cr. May be taken in plant, animal, fermentation, or dairy chemistry. Lab. fee $2.25 per lab. cr. Staff.

110. Principles of Biochemistry. I; 3 or 5 cr. The biochemistry of lipids, carbohydrates, proteins, inorganic elements, water, enzymes, and other constituents of the cell. Three lectures, 3 cr; two laboratory periods, 2 cr. Prerequisites: Quantitative and organic chemistry. Laboratory fee $4.50. Mr. Elvehjem, Mr. Hart, Mr. Link, Mr. Peterson, Mr. Steenbock, Mr. Tottingham.

120. PLANT BIOCHEMISTRY. II; 2 or 5 cr. The mechanism and course of chemical processes in the growth of plants, including the effect of environmental factors. Selected methods for the determination of plant constituents. Prerequisites: Chemistry 1b and 120. Lab. fee $2.25 per lab. cr. Mr. Tottingham.

121. DAIRY CHEMISTRY. I; 2 or 5 cr. The chemistry of milk and its products, including the chemistry of fermentation and detection of adulterants. Prerequisites: Chemistry 1, 12, and 120. Lab. fee $2.25 per lab. cr. Mr. Hart.

125. ANIMAL METABOLISM AND VITAMINS. II; 4 cr. Caloric relations; the chemistry of urine, blood, bone, and other tissues and vitamins, with feeding experiments on animals. Two lectures and two laboratory periods. Prerequisite: Biochemistry 110 or its equivalent. Laboratory fee $4.50. Mr. Steenbock.

126. MODERN VIEWS OF ANIMAL NUTRITION AND THEIR APPLICATION. II; 2 cr. A course of lectures and conferences on the newer knowledge of nutrition applied to man, poultry, dairy cattle, swine, etc. Prerequisite: Biochemistry 110, 121 or their equivalent. Mr. Hart.

127. FERMENTATION BIOCHEMISTRY. II; 2-4 cr. Lectures on the chemical composition of microorganisms and the mechanism of fermentation processes. Prerequisite: Biochem. 110 or Chemistry 120. Agr. Bact. 1, 2 or 4 desirable. Mr. Peterson.

128. CARBOHYDRATE CHEMISTRY. I; 2 cr. Offered in 1938-39 and in alternate years. Lectures on the structural and biochemical relationship of the simple sugars and sugar derivatives. II; 1 cr. The chemistry and biochemistry of the polysaccharides. Prerequisite: 1 year of organic chemistry or consent of instructor. Mr. Link.

200. RESEARCH. Yr; *cr. Carbohydrate and plant chemistry, Mr. Link. Plant nutrition and plant metabolism, Mr. Tottingham. Fermentation biochemistry, Mr. Peterson. Animal chemistry and animal nutrition, Mr. Hart, Mr. Steenbock, Mr. Elvehjem. Dairy chemistry, Mr. Hart. Lab. fee $2.25 per lab. cr.

233. SEMINARY. Yr; 1 cr. Original articles of importance are studied in detail, to broaden and deepen the understanding and to act as a stimulus to further research. Mr. Elvehjem and Mr. Link.

DAIRY INDUSTRY

HOWARD CAMPBELL JACKSON, Ph.D., *Professor of Dairy Industry, Chairman*
WALTER VAN PRICE, Ph.D., *Professor of Dairy Industry*
HUGO HENRY SOMMER, Ph.D., *Professor of Dairy Industry*
JOHN LANGLEY SAMMIS, Ph.D., *Associate Professor of Dairy Industry*
LOUIS CHARLES THOMSEN, B.S., *Associate Professor of Dairy Industry*
EVERT WALLENFELDT, M.S., *Assistant Professor of Dairy Industry*
KENNETH GRANVILLE WECKEL, Ph.D., *Assistant Professor of Dairy Industry*
CHARLES ALFRED BUCK, B.S., *Instructor in Dairy Industry*

The department offers instruction in the science and art of manufacturing dairy products, suited to the needs of (a) farm dairymen, (b) investigators and

teachers, (c) managers, operators, and inspectors of creameries, cheese factories, city milk, ice cream plants, and condenseries, and (d) engineers.

Positions available to dairy majors are not limited to the farm, the factory or the laboratory. Some graduates are employed in such activities as the design and manufacture of dairy equipment, the selling of dairy supplies and machinery, and the sales promotion of dairy products. Students desiring to major in the department and who do not wish to become research workers or dairy technologists may take work in Engineering or Commerce. Those who desire to become dairy engineers should work out their program with staff members of the department.

1. Introduction to Dairying. II; 3 cr. A general survey course designed to give the student an understanding of the relationship of dairy manufacturing to general farm problems. Emphasis is given to methods of quality control, grading, and elementary analysis of dairy products. Lab. fee $4.50. Mr. Jackson, Mr. Thomsen, Mr. Weckel.

100. Thesis. Yr; 2 cr. Lab. fee $2.25 per lab. cr. Staff.

103. Creamery Operation and Management. I; 3 cr. The theory and practice of cream separation, the pasteurization and handling of dairy products under commercial conditions, composition and flavor control of butter, and the management and operation of creameries. Lab. fee $4.50. Mr. Jackson, Mr. Thomsen.

104. Cheese Factory Operation and Management. II; 4 cr. A combined lecture and laboratory course to study the manufacture of cheese. Several types of cheese are made by the students in the laboratory to acquaint them with commercial practices and to illustrate the importance of certain physical, chemical, and biological factors which influence curd-making and cheese-ripening. Lab. fee $4.50. Mr. Price.

105. Market Milk. I; 3 cr. The production and commercial handling, processing, and distribution of market milk and related products. Quality factors and defects in these products. Milk ordinances and board of health regulations. Lab. fee $4.50. Mr. Weckel.

106. Ice Cream and Condensed Milk Products. II; 3 cr. The theory and practice of ice cream making. The manufacture of milk powder, malted milk, condensed milk, and evaporated milk. Quality factors and defects in these products. Lab. fee $4.50. Mr. Sommer.

108. Dairy Mechanics. II; 3 cr. Dairy plant construction, heating, ventilation, power plant operation, sewage disposal, refrigeration, installation, testing, and operation of dairy machinery. A two-day field trip to well-known plants is usually included in the course. Lab. fee $2.25. Mr. Thomsen.

123. Seminary. Yr; 1 cr. For advanced and graduate students. Mr. Sommer and staff.

124. Physical Chemistry of Dairy Products. II; 3 cr. Physical chemistry of dairy products, laboratory exercises on hydrogen ion concentration, oxidation-reduction potentials, surface tension, absorption, viscosity and plasticity, isoelectric point of proteins, colloidal properties of milk constituents. Lab. fee $4.50. Mr. Sommer.

180. Advanced Dairy Manufacturing Problems. Yr; 1-3 cr. Problems relating to dairy manufacturing and quality of dairy products. Prerequisite: Senior standing or consent of instructor. Lab. fee $2.25 per lab cr. Staff.

200. Research. Yr; *cr. Experimental study of problems in dairy manufacturing. Lab. fee $2.25 per lab. cr. Staff.

ECONOMIC ENTOMOLOGY

Harley Frost Wilson, M.S., *Professor of Economic Entomology, Chairman*
Charles Lewis Fluke, Jr., Ph.D., *Professor of Economic Entomology*
Edward Marlborough Searls, Ph.D., *Assistant Professor of Economic Entomology*
Thomas Cort Allen, Ph.D., *Instructor in Economic Entomology*
John Anton Callenbach, M.S., *Instructor in Economic Entomology*
John Henry Lilly, M.S., *Instructor in Economic Entomology*
Carl William Schaefer, Ph.D., *Instructor in Economic Entomology*

Students majoring in economic entomology and desiring to be trained in entomological or beekeeping research for the positions offered by the state agricultural experimental station and the government service, should follow the curriculum as outlined. Those preparing for entomological chemical work, especially with insecticides, should elect more work in chemistry and physics. Student pursuing specialized lines, such as biological control of insects, insect physiology, and insects in relation to plant diseases, should elect more work in plant pathology, botany, and physiology.

Those interested in the opportunities for graduate work in entomology and beekeeping should write to the Department of Economic Entomology for a special circular of information.

1. Elementary Entomology (Farm Insects). II; 3 cr. A study of the insect groups, especially those in relation to the farm and home. Each student makes a collection of at least one hundred specimens, which he classifies. Optional subjects for all agricultural students. Lab. fee $4.50. Mr. Fluke.

10. Elementary Beekeeping. I; 3 cr. Elementary principles of beekeeping with lectures and practical laboratory work. A general survey of the subject is taken up, with the fall and winter care in the apiary being stressed. Lab. fee $2.25. Mr. Wilson.

100. Thesis. Yr; 2 cr. Lab. fee $2.25 per lab. cr. Mr. Wilson and staff.

102. Insect Morphology and Taxonomy. I; 3 cr. A detailed study of the external morphology of insects and a determinative survey of the important Orders, Families, and Genera. Prerequisite: Economic Entomology 1 or equivalent. Discussion and laboratory. Lab. fee $4.50. Mr. Fluke.

103. Orchard Insects. II; 2 cr. A laboratory study of the life histories and controls of the principal insect pests of the orchard and bush fruits. Prerequisite; Economic Entomology 1 or 102, or a course in Zoology. Offered 1938-39 and in alternate years. Lab. fee $2.25. Mr. Fluke.

105. Field Crop and Garden Insects. II; 2 cr. A laboratory study of the principal insect pests of field, garden, and truck crops; their life histories and controls. Prerequisite: Economic Entomology 1 or 102, or a course

in Zoology. Offered 1938-39 and in alternate years. Lab. fee $2.25. Mr. Searls.

107. Principles of Insect Control. I; 3 cr. Planned for advanced students in economic entomology, pharmacy, plant pathology, and horticulture. A study of the preparations, uses, and toxicities of insecticides and their applications. Lecture and laboratory. Offered 1938-39 and in alternate years. Prerequisites: Chemistry 1 and consent of instructor. Fee $2.25. Mr. Allen.

120. Insect Ecology. II; 3 cr. Insects in relation to their environment. A survey of the principles and practices of ecology, including terminology and methods, especially as they relate to economic entomology and conservation. Lectures, laboratory and field trips. Prerequisite: Economic Entomology 1 or 102, or a course in Zoology. Offered 1938-39 and in alternate years. Lab. fee $2.25. Mr. Lilly.

123. Taxonomy of Insect Larvae. I; 3 cr. A study of the identification and morphology of immature insects. Lecture and laboratory. Prerequisites: Economic Entomology 102 or consent of instructor. Offered 1938-39 and in alternate years. Lab. fee $4.50. Mr. Searls.

125. Insects in Relation to Plant Disease. I; 2 cr. A study of the principal insect carriers and their habits; types of insect injuries affecting health of plants; modes of insect transmission and dissemination of plant diseases; and the methods of rearing and handling the carriers. Arranged to meet the needs of students in entomology, plant pathology, horticulture, and agronomy. Prerequisite: A course in entomology and plant pathology or consent of instructor. Offered 1937-38 and in alternate years. Lab. fee $2.25. Mr. Searls.

130. Seminary. I, II; 1 cr. For advanced and graduate students. Mr. Wilson.

180. Topical Work. I, II; *cr. Taxonomy methods, etc. Senior standing. Lab. fee $2.25 per lab. cr. Staff.

200. Research. Yr; *cr. Lab. fee $2.25 per lab. cr. Mr. Wilson and staff.

GENETICS

Leon Jacob Cole, Ph.D., *Professor of Genetics, Chairman*
Royal Alexander Brink, D.Sc., *Professor of Genetics*
Malcolm Robert Irwin, Ph.D., *Associate Professor of Genetics*
Gustav Herman Rieman, Ph.D., *Associate Professor of Genetics, Horticulture and Plant Pathology*
Lester Earl Casida, Ph.D., *Assistant Professor of Genetics*
Delmer Claire Cooper, Ph.D., *Assistant Professor of Genetics and Research Associate in Botany*
Norman Percy Neal, Ph.D., *Assistant Professor of Agronomy and Genetics*
William Kenneth Smith, Ph.D., *Assistant Professor of Genetics*
Arthur Barclay Chapman, Ph.D., *Instructor in Genetics*
Gordon Edwin Dickerson, *Instructor in Genetics and Dairy Records*

The following courses are designed for those 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 op-

portunity is offered those doing advanced work to get experience in the application of genetics to practical problems.

1. Principles of Breeding. I; 4 cr. Elementary principles of heredity in their application to plant and animal breeding. Additional prescribed reading and written reports for graduate credit. Prerequisite: A course in biology. Lab. fee $2.25. Mr. Irwin, Mr. Chapman.

100. Thesis. Yr; 2 cr. Lab. fee $2.25 per lab. cr. Mr. Cole, Mr. Brink.

103. Reproduction of Farm Animals. II; 2 cr. The process of reproduction and internal and external factors affecting it. Prerequisite: Physiology 3 or Veterinary Science 1. Mr. Casida.

104. Plant Genetics. II; 3 cr. Inheritance and variation in plants; the chromosomes in relation to plant breeding; mutation; principles of plant improvement. Prerequisite: Genetics 101. Mr. Brink.

105. Animal Genetics. II; 3 cr. Inheritance of economic and other characters in domesticated animals; study of animal breeding methods; evaluation and analysis of pedigrees; application of genetics to the problems of livestock production. Prerequisite: Genetics 101. Mr. Cole, Mr. Dickerson.

106. Biometric Methods. I; 2 cr. Lectures and laboratory work in calculation of statistical measures of variability and correlation and their practical application; tests of significance; analysis of variance. Prerequisite: Same as for Genetics 104. Lab. fee $2.25. Mr. Brink.

120. Seminary. Yr; 1 cr. Consent of instructor required before election. Mr. Cole.

180. Topical Work. Yr; *cr. Either (a) assigned topics in laboratory or field work with reading, conference, and report, or (b) practice work, including practical experience in the various lines of research carried on in the department; problems, technique, and methods of record keeping. For those not prepared to elect Course 200. May be taken in connection with, or subsequent to, Genetics 101; consent of instructor required. Lab. fee $2.25 per lab. cr. Mr. Cole, Mr. Brink, Mr. Casida, Mr. Irwin, Mr. Rieman.

200. Research. Yr; * cr. Animal genetics, Mr. Cole, Mr. Irwin. Plant genetics, Mr. Brink, Mr. Rieman, Mr. Cooper. Physiology of reproduction, Mr. Casida. Lab. fee $2.25 per lab cr.

(For courses in probability and statistics see Math. 118 and 137.)

HOME ECONOMICS

CLOTHING AND TEXTILES

Hazel Manning, M.S., *Professor of Home Economics, Chairman*
Marion Abbie Juaire, M.S., *Assistant Professor of Home Economics*
Cecelia Frances Abry, M.S., *Assistant Professor of Home Economics*
Mrs. Julia Lowth Hill, M.S., *Instructor in Home Economics*

5. Introduction to Clothing Study: Commercial Fibres and Their Use. I, II; 2 or 3 cr. Historical background, production, and manufacture of commercial fibres. Technique in use, construction, and study of cotton

garments, with special reference to comparative expenditure and wise choice of fabrics. Lecture and two laboratory periods. The third credit, elementary textile chemistry study, given for one credit first semester only. Preresuisites: Home Econ. 2 or concurrent registration, and Chemistry 1a. Lab. fee $2.25 per lab. cr. Miss Manning, Miss Juaire, Miss Abry, Mrs. Hill.

10. Clothing Economics. I; 2 cr. Lectures and required reading covering economic and sociological phases of the development of the ready-to-wear clothing industry in the United States. Economic study of distribution through department, chain, specialty, and mail-order houses. The psychology of advertising methods used in salesmanship. Open to election by juniors and seniors in any college. Prerequisite: Home Economics 5. Miss Manning.

11. Problems in Applied Dress Design. II; 3 cr. Application of economic and art principles to the selection of commercial costumes suitable for the individual. Planning and blocking a dress (remodeled problem) using renovated textile materials. Adaptation of patterns and development of a foundation pattern; constructing a tailored suit or coat in wool; designing and making a gown in silk emphasizing fundamental principles of good standards of technique. Two hours for discussion, 4 hours lab. Prerequisites: Junior standing and Home Economics 2, 5. Lab. fee $4.50. Miss Juaire.

50. Textile Chemistry. I, II; 3 cr. Microscopical, physical, and chemical study of the fibres, bleaching, scouring, dyeing, and chemical examination of fabrics; tests for adulteration of materials. Prerequisites: Chem. 1a and 1b and Biochem. 3 or concurrent registration. Lab. fee $6.00. Miss Abry.

53. Clothing Methods. I, II; 2 cr. Selection of illustrative material for clothing courses in secondary schools. Study of suitable material and patterns for high-school instruction. Reports and demonstrations. Required of all students who are preparing to teach clothing. Prerequisites: Home Economics 11, 50 and Educ. 75 or consent of instructor. Lab. fee $4.50. Miss Manning.

97. Problems in Applied Dress Design and Costume Selection. I; 2 cr. Study in selection and use of design in modeling and draping outer garments in wool and silk. Independent work, students required to complete problems outside. Study of different materials as adapted to costume studied. Selection of ready-to-wear clothing and accessories with emphasis on appropriate use and value. One hour for discussion and topics; 3 hours lab. Required of textile majors. Open to seniors. Prerequisite: Home Economics 11 or equivalent. Lab. fee $4.50. Miss Juaire.

100. Thesis. Yr; 2 cr. Lab fee $2.25 per lab. cr. Miss Manning and staff.

104. History of Costume in its Sociological Aspects. I; 2 cr. History of costume in classical antiquity and its subsequent development with its periodic recurrence in design and its relation to the leisure class and to the cost of living. Open to seniors and graduates. Miss Manning.

106. Seminary in History of American Costume. II; 2 cr. From the revolution to the present day. Relation of the costume to the social and economic history and growth of the United States. European influence upon materials, processes, dyes, and technique of manufacture of

textiles used in relation to women's clothing. Prerequisite: Senior standing. Miss Manning.

151. Advanced Problems in Textile Chemistry. I; 2 cr. Special problems in testing the qualities of fibres and dyes in cloth and effect of friction, sun and detergents on the fabrics. Analysis and other tests on fabrics for Wisconsin consumers and state institutions. Open to senior and graduate students. Prerequisite: Home Econ. 50. Lab. fee $4.50. Miss Abry.

180. Topical Work. Yr; *cr. Lab. fee $2.25 per lab. cr. Miss Manning, Miss Juaire, Miss Abry.

200. Research in Textile Chemistry. I, II; *cr. Lab. fee $2.25 per lab. cr. Miss Manning.

FOODS AND ADMINISTRATION

Abby Lillian Marlatt, M.S., Sc.D., *Professor of Home Economics, Chairman*
Helen Tracy Parsons, Ph.D., *Professor of Home Economics*
Mrs. May Statler Reynolds, Ph.D., *Associate Professor of Home Economics*
May Louise Cowles, Ph.D., *Assistant Professor of Home Economics*
Ruth Adele Henderson, M.A., *Assistant Professor of Home Economics and Education*
Stella Trout Patton, M.S., *Assistant Professor of Home Economics*
Mrs. Dorothy Reed Mendenhall, B.A., M.D., *Lecturer in Home Economics*
Irene Margaret Hoan, M.S., *Instructor in Home Economics*
Dorothy Lillian Husseman, M.S., *Instructor in Home Economics*
Mrs. Madeline Fess Mehlig, M.S., *Instructor in Home Economics*
Shirley Eleanor Newsom, M.S., *Instructor in Home Economics*
Frances Elizabeth Roberts, M.S., *Instructor in Home Economics*

1a. General Survey, Dietetics and Feeding the Family. I; 2-4 cr. Detailed study of standards in diet for all ages; diet for the sick. Laboratory practice in the study of the more common foods and their purchase, preparation and service in meals suited to varying income levels, especially planned for majors in social welfare work. Special problems in planning food budgets and conference to discuss food selection in cases in welfare work. Study, preparation, and observation of nursery school lunch. Open to juniors and seniors. Lab. fee $2.25 per lab. cr. Not offered 1938-39. Mrs. Reynolds, Miss Roberts.

3. Introduction to Food Study. II; 3 cr. Study of the chemical and biological standards used in the selection, preparation and service of foods. Prerequisite: High-school physics or chemistry, or Chemistry 1a, or Biology 1. Lab. fee $4.50. Miss Marlatt and staff.

4. Problems of Food Supply. I; 3 cr. Effect of transportation, storage and manufacture upon cost and quality of food; methods and apparatus used in preparation and preservation of foods; study of effect of pure food laws; study of economic problems in marketing; comparative cost studies of fuels and refrigeration; labor costs in relation to ready made foods vs. home preparation in meal service. Prerequisites: Biochem. 3, bacteriology, physics, Home Econ. 3. Lab. fee $4.50. Miss Marlatt, Miss Hussemann, Mrs. Reynolds.

6. Nutrition and Dietetics. I or II; 4 cr. The newer knowledge of nu-

trition as applied to feeding the family. A study of the dietary needs of the individual as determined by age, sex and occupation. Special attention given to planning normal diets at different income levels. Laboratory work includes studies of student's own diet; planning and preparation of diets to meet special needs such as those of mothers, infants, preschool children, overweight and underweight individuals; planning, preparing and serving nursery school lunches; nutrition studies on laboratory animals; metabolism studies on individual students. Prerequisites: Home Economics 4, Physiology 1, Biochem. 3. Lab. fee $2.25. Mrs. Reynolds, Miss Husseman, Miss Roberts.

9. Introduction to Home Economics. I; 1 cr. Woman's position through the ages. The history of the home, social customs, and their value in the evlution of the family. Miss Marlatt and staff.

100. Thesis. Yr; 2 cr. Lab. fee $2.25 per lab. cr. Miss Marlatt and staff.

105. Experimental Food Study. I, II; 2 cr. A laboratory course in applied physics and chemistry in the field of cookery. An experimental introduction to research work in foods and nutrition, and in commercial food laboratories. Senior or graduate standing; consent of instructor. Lab. fee $4.50. Miss Marlatt.

125. Diet Therapy. I, II; 3 cr. The adaptation of diet to the disorders of nutrition. Prerequisites: Home Econ. 6 and Physiological Chem. 104. Lab. fee $2.25 per lab. cr. Miss Parsons and staff.

180. Topical Work in Foods and Nutrition. I, II; *cr. Lab. fee $2.25 per lab. cr. Staff.

200. Research in Foods and Nutrition. I, II; *cr. Lab. fee $2.25 per lab. cr. Miss Marlatt, Miss Parsons.

HOUSING AND HOUSE MANAGEMENT

1b. General Survey, Household Management and Family Budget Problems. II; 2-3 cr. Lectures, 2 cr.; conference, 1 cr. Nature of the family income, problems related to its source and distribution; the family budget, the standard of living, changes in family expenditure under different conditions; the cost of living, special problems encountered in selection and purchase of food, housing, clothing, and other commodities for the household. Especially planned for social welfare workers. Reference work is required. Conference includes practice in planning a budget for a specific family, with opportunity for social welfare workers to discuss special problems in planning minimum budgets; discussion of selection and purchase of clothing. Open to juniors and seniors in any college. Not offered in 1938-39. Miss Cowles and staff.

7. Housing and Sanitation. I; 3 cr. Study of historic housing and present-day housing needs. Factors determining economic and sanitary limitations in housing: as services available, types of dwellings, influence of modern transportation on location, problems of home ownership, and methods of reducing costs. Influence of style on housing costs and selection. Economic practices affecting housing construction and sanitation. Influence of national aid and community on housing costs and selection. Need for cooperation of community in beautification of home grounds. Lectures, trips, topics and reports; one laboratory period which covers

problems in remodelling old houses and arranging floor plans of small houses for convenience and comfort in family living, ease in working, pleasing appearance, conformity with various house styles and correlation of exterior with interior, economic limitation to meet needs of 85 per cent of population. Prerequisite: Home Econ. 2. Lab. fee $2.25. Miss Marlatt, Miss Cowles, Miss Roberts, Mrs. Mehlig.

72. HOME NURSING. I; 1 cr. A two-hour laboratory course in first aid home nursing. Open to juniors and seniors in any college. Miss Bunge.

100. THESIS. Yr; 2 cr. On the advice of the professor one or two approved non-home economic senior subjects in any college may be substituted. Lab. fee $2.25 per lab. cr. Miss Marlatt and staff.

109. HUMANICS. II; 1-4 cr. Studies in family relationships and child training. Prenatal and natal care of mother and child; study of beliefs and customs, affecting human environment today; value of the family as a basis for advancement; the influence of inheritance and environment on the child in the home; problems of the first year in human life; effect of community standards on family problems; value of home training in education of the child; place of the nursery school in the education of parents and the child; growth of the pre-school child; play of the pre-school child; home problems in adolescence; attitudes toward realities affected by family relationship; influence of the home on developing abnormal mental states; discussion of the home as the best place to rear children. Observation in hospitals and in the Dorothy Roberts Nursery School. Lectures, conference and discussion periods. Open to seniors and graduate students. Miss Marlatt, Dr. Mendenhall, Miss Roberts, and Miss Newsom.

110. HOUSEHOLD ADMINISTRATION. I or II; 2 cr. A study of the social and economic functions of the home, their historic and present status, with special attention given to standards of living, the management of the family income, household organization, and management. Prerequisite: Senior or graduate standing. Miss Cowles.

112. PROJECTS IN HOUSEHOLD ADMINISTRATION. I or II; 1-2 cr. Discussion, conferences, and reports to give students familiarity with the economic problems of the home. The buying problem which the purchaser for the family confronts. Problems arising from the change in character of household production. Study of fluctuations in prices of goods bought by the consumer. Study of problems connected with the family income, its amount and source. Students live either the first or second semester in the home economics cottage for two weeks for laboratory practice in solution of problems. Prerequisite: Home Economics 110 or concurrent registration. Lab. fee $6.75. Miss Cowles, Miss Hoan.

180. TOPICAL WORK. Yr; *cr. Lab fee $2.25 per cr. Staff.

220. PROBLEMS OF CONSUMPTION. II; 2 cr. The character of the consumer as spender of the family income. Examination of studies of family expenditures to gain knowledge of present-day tendencies in consumption. The origin of standards for choice, the character of the goods available as it influences the choice of the buyer of the family's goods. Discussions and conferences. Content of course will be adapted to the needs of students. Miss Cowles.

223. Seminary in Housing Problems. II; 2 cr. A study of housing situation in the United States at the present time; the origin of the housing problem in the change in industrial conditions and the shift in the population from country to city; the relation of utilization of land, of transportation, and of distribution of wealth to the housing problem, evolution of the remedies for housing difficulties suggested or used in the United States or Europe, including provision of housing by the government, by employers, legislation of various types, and other remedies. Miss Cowles.

INSTITUTIONAL MANAGEMENT

22. Marketing and Large Quantity Cookery. I; 2 cr. Time study, economic study, and marketing study in the selection, purchase, and preparation of foods in large quantities. Prerequisite: Home Economics 4 or concurrent registration. Lab. fee $2.25. Miss Patton.

122. Organization and Administration of Institutions. I; 3 cr. Organization and administration, methods of accounting in office and store room, taking of inventories, planning of work for employees. A study of institutional planning and building; the selection, cost, and care of labor-saving equipment and other furnishings for hospital, dormitory, or tea room. Prerequisites: Food major, senior standing. Miss Patton.

133. Tea Room and Cafeteria Management. II; 3-4 cr. A study of the organization of tea rooms and cafeterias, necessary equipment, service problems, menu making and catering, accounting and advertising. Practice in lunch-room management in departmental laboratories and study in University Commons. A field inspection trip is required. Prerequisite: Senior standing in Home Economics. Lab. fee $2.25. Miss Patton and staff.

180. Topical Work in Institutional Management. I, II; *cr. Miss Patton.

222. Laboratory and Research Work. I, II; 2-4 cr. Detailed study of accounting and organization and labor problems as an interne in the University Commons. Miss Patton and Mr. Halverson.

RELATED COURSES IN EDUCATIONAL METHODS

52. Teaching of Home Economics. I, II; 5 cr. Study of problems of the home economics teacher, including lesson plans, courses of study, equipment, reference and illustrative material. Observation and practice work in presentation is afforded. Prerequisites: Senior standing in a teaching major; Education 75. Open also to seniors minoring in Education. Miss Henderson, Mrs. Nofsker.

53. Clothing Methods. I, II; 2 cr. Selection of illustrative material for clothing courses in secondary schools. Study of suitable material and patterns for high-school instruction. Reports and demonstrations. Required of all students who are preparing to teach clothing. Prerequisites: Home Economics 11, 50, and Ed. 75 or consent of instructor. Lab. fee $4.50. Miss Manning.

126. Extension Methods in Home Economics. I; 2 cr. A course to train extension workers for community leadership and to prepare them to cooperate with all agencies for community development. The course con-

sists of discussion of problems in county agricultural extension work; child welfare work; P. T. A. work; demonstration methods in food, clothing and child hygiene; housing problems; publicity methods; projects to develop community leaders; and the consideration of principles of economics, psychology, and sociology as applied to the problems of rural home life and adult education. Miss Marlatt and staff.

158. Advanced Course in Home Economics Education. I, II; 2 cr. Educational problems. For selected seniors and graduate students who are prepared to do intensive study in special educational methods and tests applied to high-school classes in home making. Miss Henderson.

180. Topical Work in Home Economics Education. Yr; *cr. Miss Henderson.

RELATED ART

Mrs. Ruth Sackett Randolph, M.A., *Associate Professor of Home Economics, Chairman*
Helen Louise Allen, M.A., *Assistant Professor of Home Economics*
Mrs. Ruth Ketterer Harris, M.S., *Instructor in Home Economics*
Mrs. Helene Pease Matterson, B.S., *Instructor in Home Economics*
Ruth Riefling, M.A., *Instructor in Home Economics*

The Department of Related Art aims to promote the interest in art as it relates to costume and to the home. It offers to teaching majors in home economics, to majors in relater art and art education, and to students interested in commercial work, an opportunity to study design in interiors, costumes, textiles, furniture and decorative details.

2. Introduction to Related Art. I, II; 3 cr. A study of principles underlying line, mass, and color arrangement in art related to the home and to costume. Lab. fee $4.50. Mrs. Randolph and staff.

8. House Decoration. I, II; 2 cr. Problems involved in the decoration and furnishing of the present-day house; relation of the decorative scheme to the architectural features; effects of various line, mass and color arrangements; background treatments; methods of lighting; choice of floor coverings, draperies, furniture, pictures, and accessories. Illustrated lectures and discussion. Prerequisites: An elementary course in design and junior standing. Miss Riefling.

18. House Decoration Laboratory. I, II; 2 cr. A study of problems in planning the decoration of a selected house. Prerequisites: An elementary course in design and junior standing. Should be taken with Home Economics 8. Lab. fee $4.50. Miss Riefling and staff.

20. Costume Appreciation and Selection. I, II; 2 cr. A course in fundamentals of design and style in dress and accessories as a basis for the selection or design of becoming and appropriate clothes. A study of figure, color and personality types, and the relation of carriage and coiffure to personal appearance. Lectures, demonstrations and laboratory work. Prerequisites: An elementary course in design and sophomore standing. Lab. fee $4.50. Mrs. Randolph and staff.

94. Decorative Textiles. II; 3 cr. Design in its application to accessories

for home and clothing with emphasis on the traditional textile arts. Problems in embroidery and other techniques to develop appreciation of design in modern hand and machine made textiles. One lecture and four hours of laboratory. Prerequisites: An elementary course in design and junior standing. Lab. fee $4.50. Miss Allen.

95. Weaving: Development and Construction. I, II; 1-3 cr. This course is planned to develop a keener appreciation of the factors involved in textile selection as well as educational application in occupational therapy. It involves the planning of problems in design, color and texture; the preparation of the materials for the loom, the setting up and weaving. The lectures cover the construction of patterns, types of weaves, and the history of hand weaving. Prerequisites: Home Economics 2 and 5, or consent of instructor. Lab. fee $2.25 per lab. cr. Miss Allen.

100. Thesis. Yr; 2 cr. Lab. fee $2.25 per lab. cr. Mrs. Randolph and staff.

114. Studies and Practice in Interior Decoration and Furnishing. I, II; 2 cr. Practical problems to train the student for the field of professional interior decoration and for greater ease in handling interior decoration problems in the home. Prerequisites: Home Economics 8, 18, 94, and 116 or concurrent registration. Miss Riefling.

116. Traditional Styles in Interior Decoration. Yr; 2 cr. Relation of interior to exterior, wall treatments, furniture design, window treatments, color and accessories with their adaptations in present day use. The study of European styles is offered the first semester, American style and Modern the second semester. Prerequisite: Home Economics 8 or 118s or its equivalent, and senior standing. Miss Riefling.

121. Advanced Costume Design. II; 2 cr. Studies in the effects of color, line and form. Analysis of physical proportions with designs adapted to individual differences. Social and economic limitations in preparing costume and accessory designs for future construction. Problems designed to develop discrimination, good judgment, and originality rather than technique in drawing. Prerequisites: A course in costume design or consent of instructor and senior or graduate standing. Mrs. Randolph.

180. Topical Work. Yr; *cr. Lab. fee $2.25 per lab. cr. Staff.

216. Seminary in Interior Decoration. II; 2-4 cr. Course designed to meet the needs of graduate students desiring advanced study in historical, economic and practical aspects of present day interior decoration. Prerequisites: One semester of Home Economics 116. Miss Riefling.

HORTICULTURE

James Garfield Moore, M.S., *Professor of Horticulture, Chairman*
James Johnson, Ph.D., *Professor of Horticulture*
James Garfield Milward, M.S., *Professor of Horticulture*
Ray Harland Roberts, Ph.D., *Professor of Horticulture*
Franz August Aust, M.S., M.L.D., *Associate Professor of Horticulture*
George William Longenecker, M.S., *Associate Professor of Horticulture*
Gustav Herman Rieman, Ph.D., *Associate Professor of Genetics, Horticulture and Plant Pathology*

JOHN WILLIAM BRANN, M.S., *Assistant Professor of Horticulture and Plant Pathology*
CONRAD LOUIS KUEHNER, B.S., *Assistant Professor of Horticulture*
OVA BEETUM COMBS, M.S., *Instructor in Horticulture*
LAURENCE GERMAIN HOLMES, B.S., *Instructor in Horticulture*
WILLIAM BUTLER OGDEN, M.S., *Instructor in Horticulture*

The courses offered in horticulture permit the student to specialize in fruit growing, landscape design, or vegetable production. The choice of electives taken in other departments to supplement horticultural courses will be determined by the specialization and the particular phase of the work the student expects to enter. Courses 1, 3, 5, 6, 7, and 12 should be of particular interest to students specializing in other departments who are fitting themselves to be county agents, teachers in vocational or high schools, or farm managers or operators.

Majors in horticulture may count a maximum of five credits toward the major requirement by electing Economic Entomology 103 or 105 and Plant Pathology 101. Students majoring in Landscape are not required to count as credits in their major the following courses in the Department of Horticulture: Horticulture 1, 3, 5, and 103. Landscape majors may substitute Art Education 50 for Animal Husbandry 1 and Topographical Engineering 107 or 108 for Mathematics 71 in the freshman year. With the consent of the major adviser Agricultural Economics 117 may be substituted for Agricultural Economics 1, offered in the sophomore year and Rural Sociology 25 or Plant Pathology 101 for Botany 146 in the junior year. Their attention is called to courses in city planning offered by the College of Engineering.

1. PRINCIPLES OF FRUIT GROWING. I; 3 cr. The principles of fruit growing and their application to our common tree fruits. Optional subject for all agricultural students. Lab. fee $2.25. Mr. Moore.

3. VEGETABLE GARDENING. II; 3 cr. The growing of vegetables out of doors. Practical work in the gardens. Optional subjects for all agricultural students. Lab. fee $4.50. Mr. Moore.

5. SMALL FRUIT CULTURE. I; 2 cr. Culture of cane, bush and other small fruits. Offered in 1938-39 and alternate years. Mr. Moore.

6. PRINCIPLES OF LANDSCAPE DESIGN. I and II; 1938-39; Only I, 1939-40, 3 cr. Discussion of the principles of landscape art. Field and laboratory work in the study of landscape plants and the making of planting plans. A trip will be taken for the purpose of studying plant materials and nursery practice. Lab. fee $2.25. Mr. Longenecker.

7. PLANT PROPAGATION. II; 2 cr. Principles and practices involved in propagating horticultural plants. Lectures and laboratory. Lab. fee $2.25. Mr. Moore.

8. HOME HORTICULTURE. II; 3 cr. A consideration of the growing and use of plants and flowers for home beautification and the production of vegetables and small fruits for home use. Designed primarily for women. Offered in 1939-40 and alternate years. Lab. fee $2.25. Mr. Moore.

12. ELEMENTARY HOME GROUNDS DESIGN. II; 3 cr. A continuation of Horticulture 6 dealing specifically with the problems of ground beautification. Prerequisite: Hort. 6 or consent of instructor. Lab. fee $2.25. Mr. Aust, Mr. Longenecker.

13. LAWNS. I; 2 cr. A study of ground forms, terracing, grading, and estimating; assigned problems. Prerequisite: Consent of instructor. Offered in 1938-39 and alternate years. Lab. fee $2.25. Mr. Longenecker.

14. LANDSCAPE CONSTRUCTION PROBLEMS. Yr; 3 cr. I, Design and construction of walls, steps, ramps, drives, and walks. II, Design and construction of garden features such as pools, bird baths, arbors, and seats. Prerequisite: Hort. 6. Offered in 1939-40 and in alternate years. Lab. fee $4.50. Mr. Longenecker.

100. THESIS. Yr; 2 or more credits. Research work on horticultural subjects. Fees depend upon character of thesis work. Lab. fee $2.25 per lab. cr. Mr. Aust, Mr. Johnson, Mr. Moore, Mr. Roberts.

101. ADVANCED HOME GROUNDS DESIGN. I; 3 cr. Design of estate, country home grounds, and related problems. Prerequisite: Hort. 6 and 12. Lab. fee $4.50. Offered in 1939-40 and in alternate years. Mr. Aust, Mr. Longenecker.

102. PUBLIC GROUNDS. II; 3 cr. Landscape problems in connection with public buildings. Parks and cemetery design. Roadside planting. Lab. fee $4.50. Offered in 1939-40 and in alternate years. Mr. Aust.

103. CROP IDENTIFICATION AND STANDARDS. I; 2 cr. A consideration of the classification, identification and standards of excellence of field, orchard and garden crops. Laboratory exercises in identification, judging and exhibiting crops. Lab. fee $2.25. Only one credit of this course may be counted toward a major in Horticulture. (Also listed as Agronomy 103.) Mr. Moore, Mr. Holden.

104. LANDSCAPE PLANTS. Yr; 2 cr. I, A study of plant forms, color, and texture in landscape design. II, Advanced study of annuals and herbaceous perennials. Prerequisite: Hort. 6. Offered 1938-39 and alternate years. Lab. fee $2.25. Mr. Longenecker.

110. SEMINARY. Yr; 1 cr. For advanced and graduate students. Mr. Aust, Mr. Roberts.

122. ADVANCED POMOLOGY. Yr; 2 cr. Recent theory, and practice regarding problems of commercial orcharding. Lectures, laboratory and field work on fruitfulness, cultural practices, thinning, harvesting, storing, marketing, classification, identification, and judging fruits. First semester problems relating to fruit; second semester problems of orchard practice. Prerequisite: Hort. 1 or consent of instructor. Lab. fee $2.25. Mr. Roberts.

180. HORTICULTURAL PROBLEMS. Yr; 1-3 cr. Assigned problems in the phase of horticulture in which the student is particularly interested: (a) fruit growing, Mr. Moore, Mr. Roberts; (b) gardening and floriculture, Mr. Moore; (c) landscape, Mr. Aust, Mr. Longenecker. Lab. fee $2.25 per lab. cr.

192. RURAL-REGIONAL PLANNING. II; 3 cr. Discussion of the technique and principles of rural-regional planning and zoning; the assembling of basic data underlying a plan for a selected county or region, followed by student reports each covering a segment of the complete project. Only one credit of this course may be counted toward a major in Horticulture. Open to students majoring in the departments represented by the staff or the consent of the instructors. Mr. Aust, Mr. Kolb, Mr. Wehrwein.

200. Research Problems. Yr; *cr. Horticultural problems for students qualifying for advanced degrees. Fee: $2.25 per lab. cr. Staff.

LIBRARY

Clarence Scott Hean, B.A., *Librarian*

1. Library Practice. I; 2 cr. The classification and arrangement of books, filing of bulletins, use of card catalogs, periodical indexes, abstract journals, public documents, standard reference works, including handbooks in the various fields of knowledge, and the compiling of bibliographies. Mr. Hean.

PLANT PATHOLOGY

George Wannamaker Keitt, Ph.D., *Professor of Plant Pathology, Chairman*
James Geere Dickson, Ph.D., *Professor of Plant Pathology*
Benjamin Minge Duggar, Ph.D., *Professor of Physiological and Applied Botany*
Edward Martinius Gilbert, Ph.D., *Professor of Botany and Plant Pathology*
Albert Joyce Riker, Ph.D., *Professor of Plant Pathology*
Richard English Vaughan, M.S., *Professor of Plant Pathology*
John Charles Walker, Ph.D., *Professor of Plant Pathology*
Gustave Herman Rieman, Ph.D., *Associate Professor of Genetics, Horticulture and Plant Pathology*
John William Brann, M.S., *Assistant Professor of Horticulture and Plant Pathology*
Clarice Audrey Richards, Ph.D., *Lecturer in Forest Products*
Ottis C. Whipple, B.S., *Instructor in Plant Pathology*

Courses 104, 220, 221, 249, and 252 are offered in the Department of Botany, College of Letters and Science, and do not count toward the 50 credits required in the College of Agriculture.

100. Thesis. Yr; 2 cr. 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. Lab. fee $2.25 per lab cr. Staff.

101. Diseases of Plants. I; 3 cr. The nature, causes, and remedies of the diseases of economic plants, including field and laboratory studies of a typical series of examples. Prerequisites: Botany 1 and Agr. Bact. 1. Lab. fee $4.50. Mr. Walker, Mr. Backus.

102. Methods in Plant Pathology. I; 3 cr. Research procedures including: use of the literature, isolation and innoculation practices, special technique according to individual needs, and preparation of manuscripts. Prerequisite: Plant Path. 101. Lab. fee $4.50. Mr. Riker.

104. Morphology of Fungi. I; 3 cr. Prerequisite: Botany 1. Lab. fee $3.50. Mr. Gilbert.

116. Diseases of Field Crops. II; 2 cr. Arranged to meet the needs of students in plant pathology and agronomy. Prerequisite: Plant Path.. 101. Not offered in 1938-39. Lab. fee $2.25. Mr. Dickson.

117. Diseases of Orchard Fruits. II; 2 cr. A study of the more important diseases of deciduous orchard fruits. Prerequisite: Plant Path. 101. Not offered in 1938-39. Lab. fee $2.25. Mr. Keitt.

119. Fungus Deterioration of Forest Products. I; 2 cr. A survey of the cause and prevention of stains and decay in forest products, and control measures. Prerequisites: Plant Path. 101 and Botany 220. Not offered in 1938-39. Lab. fee $2.25. Miss Richards.

120. Diseases of Vegetable Crops. II; 2 cr. A study of the more important field and storage diseases of vegetable crops. Prerequisite: Plant Path. 101. Offered 1938-39 and in alternate years. Lab. fee $2.25. Mr. Walker.

122. Fungicides in Relation to Host and Parasite. II; 1 cr. Advanced course, intended primarily for students in plant pathology, horticulture, and economic entomology. Prerequisite: Plant Path. 101. Offered 1938-39 and in alternate years. Mr. Keitt.

200. Research. Yr; *cr. Lab. fee $2.25 per lab. cr. Staff.

220. Advanced Mycology. Yr; 2 cr. Prerequisite: Botany 104. Lab. fee $2.00. Mr. Gilbert.

221. Classification of Parasitic Fungi. Yr; 1 cr. Prerequisite: Botany 104 or Plant Path. 101. Mr. Backus, Mr. Green.

223. Seminary in Plant Pathology. Yr; 1 cr. For advanced and graduate students. Mr. Keitt.

249. Special Physiology of Pathogenic Fungi. II; 2 cr. Prerequisite: Botany 146. Mr. Duggar.

252. Cytology of Fungi. II; 2 cr. Prerequisite: At least one semester of general cytology. Lab. fee $1.50 per cr. Mr. Gilbert.

POULTRY HUSBANDRY

James Garfield Halpin, B.S., *Professor of Poultry Husbandry, Chairman*
John Barry Hayes, B.S., *Professor of Poultry Husbandry*
Gerald Everett Annin, B.S., *Assistant Professor of Poultry Husbandry*
Clayton Ernest Holmes, M.S., *Assistant Professor of Poultry Husbandry*

Students majoring in poultry husbandry may prepare for commercial poultry farming, for one of the various lines of commercial work with which poultry husbandry is related, or for educational work in extension instruction, or research. Poultry majors should supplement their training by electing such courses as Animal Husbandry 126, Biochem. 1, Agr. Econ. 127 and 128, and Genetics 101. Students preparing for educational work along the more scientific lines should elect Chemistry 120, Biochem. 110, Zoology 105 and 109. Not to exceed five credits from the following courses may be counted as a portion of the major requirement in poultry husbandry: Veterinary Science 120, Parasites of domestic animals; Veterinary Science 125, Diseases of poultry; Animal Husbandry 126, Livestock feeding; Biochem. 110, Principles of biochemistry; Agricultural Economics 127, Cooperative marketing; Agricultural Economics 128, Marketing agricultural products; Genetics 105, Animal genetics.

1. Poultry Raising. I; 3 cr. A general survey course designed to give the student an understanding of the problems concerned in poultry raising. Emphasis is given to the study of judging for egg production. Optional subject for all agricultural students. Lab. fee $2.25. Mr. Holmes.

8. Marketing Poultry Products. I; 3 cr. A study of the factors that tend to produce quality in market poultry and eggs. Methods of marketing poultry and eggs. Laboratory practice in caponizing; dressing, grading, and packing market poultry; candling, grading, and packing market eggs. Lab. fee $2.25. Mr. Annin.

100. Thesis. Yr; 2 cr. Lab. fee $2.25 per lab. cr. Mr. Halpin, Mr. Holmes, Mr. Annin.

102. Poultry Feeds and Feeding. I; 3 cr. A study of poultry feeds and formulation of poultry rations with special reference to the mineral, protein and vitamin requirements. The influence of recent investigation upon modern methods of poultry feeding. Prerequisite: Poultry Husbandry 1 or Animal Husbandry 126. Offered 1938-39 and in alternate years. Mr. Halpin.

105. Hatchery Management. II; 3 cr. A study of the factors influencing the fertility and the hatchability of eggs; a study of practical chick embryology. Brooding requirements of baby chicks; cost of production and methods of marketing. Prerequisite: Poultry Husbandry 1. Offered 1937-38 and in alternate years. Lab. fee $2.25. Mr. Holmes.

106. Poultry Judging. I; 3 cr. Origin, history, and points of excellence of the various breeds and varieties of poultry as described in the American Standard of Perfection. A study of the inheritance of common characters in poultry. Prerequisites: Poultry Husbandry 1 or Genetics 101. Offered 1939-40 and in alternate years. Lab. fee $2.25. Mr. Halpin, Mr. Annin.

107. Advanced Poultry Management. II; 3 cr. Influence of recent investigations in poultry husbandry as they affect modern methods of feeding, housing, breeding, care and management of poultry. Offered in 1938-39 and in alternate years. Prerequisite: Poultry Husbandry 1. Hr. Halpin.

200. Research Problems. Yr; *cr. Lab. fee $2.25 per lab. cr. Mr. Halpin, Mr. Holmes, Mr. Annin.

RURAL SOCIOLOGY

John Harrison Kolb, Ph.D., *Professor of Rural Sociology, Chairman*
Arthur Frederick Wileden, M.S., *Associate Professor of Rural Sociology*
John Rector Barton, B.D., *Assistant Professor of Rural Sociology*
George William Hill, B.A., *Assistant Professor of Rural Sociology*

Social and human relationships in modern agriculture are of increasing importance. This is true when viewed from any standpoint, whether of the farm and home, the professional worker as a teacher, extension worker, clergy, editor, or the various agricultural industries. Courses in this department seek to give a broad as well as an intensive view of the rapidly changing phases of rural life. Changes imply adjustments in the many social institutions and agencies working in rural society, such as family, school, church, store, newspaper,

farmers' organization, or marketing association. Farming needs to be considered as a mode of life and as a series of group relations beginning with the family and extending to the neighborhood, the town-country-community and, in these days of rapid travel, even on to the city.

There are at least two ways in which students may work in the field of rural sociology. First, a program leading to a full major and looking toward teaching, research, or extension work may be arranged. In such a plan 10 credits should be taken in the department and 5 credits selected in any one of the following departments: Agricultural Economics, Agricultural Education, Agricultural Journalism, Horticulture, Home Economics, or Sociology in the College of Letters and Science. Credits thus chosen in Letters and Science may count on the major, but shall not be counted as a portion of the 50 credits required in agricultural subjects. Second, courses in the department may be selected as electives by students majoring in other departments, who wish to gain a wider perspective concerning the social arrangements of present-day rural society.

25. RURAL LIFE. I; 3 cr. The study of rural society. Its organization and relations, such as families, neighborhoods, villages, interest groups, town-country and rural-urban relations; its people, such as their changing characteristics and mobility; its social institutions, such as those for education, religion, standards of living, sociability, recreation, health, social welfare, local government. Prerequisite: Sophomore standing. Mr. Kolb.

100. THESIS. Yr; 2 cr. Original work on problems pertaining to rural communities. Staff.

125. RURAL SOCIAL TRENDS. I; 2 cr. An advanced course in the study of rural society through a systematic examination of important source materials from Europe and America, and recent findings in rural social trends. A consideration of problems arising out of the impact of certain trends in rural social organization. Mr. Barton.

126. RURAL STANDARDS OF LIVING. II; 2 cr. Development of standards of living in rural communities. A study of all elements composing the standard of living such as food, housing, clothing, transportation, education, recreation in relation to various material and non-material conditioning factors. Special reference is made to the growth of a consumer consciousness in rural areas, and the various agencies, governmental and cooperative, which give it expression. Prerequisite: Junior standing or consent of instructor. Mr. Barton.

192. RURAL-REGIONAL PLANNING. II; 3 cr. Discussion of the technique and principles of rural-regional planning and zoning, the assembling of basic data underlying a plan for a selected county or region, followed by student reports each covering a segment of the complete project. Only one credit of this course may be counted toward a major in Rural Sociology. Open to students majoring in the departments represented by the staff or the consent of the instructors. Mr. Kolb, Mr. Aust, Mr. Wehrwein.

200. RESEARCH AND THESIS. Yr; *cr. Rural social organization and trends. Mr. Kolb. Community organization, leadership and extension methods. Mr. Wileden. Rural standards of living and social aspects of consumer activities. Mr. Barton. Social and family relations in public welfare. Mr. Hill.

225. SEMINARY IN RURAL SOCIAL RESEARCH. I; 2 cr. Emphasis upon the scope and method of research in this field. Case studies of current research projects with particular attention to those concerned with various phases of community organization, standards of living, rural population, farmers' organization, social institutions, rural government, social psychology and social trends. Mr. Kolb.

SOILS

ANDREW ROBINSON WHITSON, B.S., *Professor of Soils, Chairman*
CLINTON JOSEPH CHAPMAN, B.S., *Professor of Soils*
EDWARD JOHN GRAUL, M.S., *Professor of Soils*
FREDERICK LUDWIG MUSBACH, B.S., *Professor of Soils* (Marshfield)
EMIL TRUOG, M.S., *Professor of Soils*
OTTO REINHART ZEASMAN, B.S., *Associate Professor of Soils and Agricultural Engineering*
SERGIUS ALEXANDER WILDE, Dr. Tech. Sci., *Associate Professor of Soils*
ARTHUR ROBERT ALBERT, B.S., *Assistant Professor of Soils* (Hancock)
HAROLD HAIGHT HULL, Ph.D., *Instructor in Soils*
ROBERT JOHN MUCKENHIRN, Ph.D., *Instructor in Soils*

Soils 1 or its equivalent is prerequisite to all other courses in soils. Soils 1 and 126 are general in character and are adapted to the needs of all students of agriculture. The summer period is particularly suited to field studies and advanced work in soil fertility.

GENERAL MAJOR. Students majoring in soils and preparing for practical farming positions as farm manager, teacher of agriculture or county agricultural agent, should elect courses in Physics, Botany, Mathematics, Agr. Economics, Agr. Engineering, Agronomy, Animal Husbandry, Agr. Bacteriology, and Geology to supplement the required work in soils.

TECHNICAL MAJOR. Students desiring to prepare for the work of soil surveying, land classification or field experimentation should follow the general suggestions given above for the general major, but choose supplementary electives from the following group: Agr. Engr. 1, 101, 106; Agronomy 102, 106; Botany 129; Chemistry 11 or 12; Geography 106; Geology 1 (10 cr.), 11, 133; Land Economics 117; and a foreign language in addition to all courses in Soils.

Students preparing to become soil chemists or physicists should elect courses in Chemistry 12, 3 cr; Geology 17, 3 cr; Agronomy 102, 2 cr., 106, 3 cr; Chemistry 120, 3 or 5 cr; German or French; and Agr. Bact. 123, 3 cr; Chemistry 130, 5 cr., in the senior year; in addition to all courses in Soils.

Not to exceed 5 credits from the following courses may be counted as a portion of the undergraduate major requirement in Soils: Agr. Bact. 123, 3 cr., Geology 1, 5 cr., Geology 17, 3 cr., Agronomy 102, 2 cr., Agronomy 106, 3 cr.

Students are urged to consult a member of the department not later than the second semester of their sophomore year so that a logical sequence of courses may be arranged.

1. SOILS AND SOIL FERTILITY. I; 4 cr. Discussions and laboratory work on the formation, composition, properties, fertility, and management of soils in relation to the growth of plants. Prerequisite: Chemistry 1b. Lab. fee $4.50. Mr. Graul, Mr. Muckenhirn.

100. THESIS. Yr; 2 cr. Lab. fee $2.25 per lab. cr. Mr. Whitson and staff.

106. SOIL EROSION, CAUSES AND CONTROL. I; 4 cr. Extent and kinds of erosion. Rate of water absorption and soil erodability as affected by rainfall, soil, vegetation and cultural practices. Erosion control structures, including surveys for terraces, terrace outlets, and soil saving dams. Saturday forenoons reserved for field and laboratory. Joint, Soils and Agricultural Engineering. Only two credits of this course may be counted toward a major in Soils. Prerequisites: Soils 1, and a course in topographic mapping. Mr. Whitson, Mr. Zeasman.

121. SOIL ANALYSIS. II; 4 cr. Lectures and laboratory. Soil acidity and base exchange methods, availability methods for essential elements and fertilizer requirements, complete soil analysis, including separation and analysis of soil colloids. Prerequisites: Soils 1, Chemistry 12. Lab. fee $4.50. Mr. Truog.

122. SOIL PHYSICS. II; 3 cr. Lectures and laboratory work on the physical properties of soils and the methods of physical soil analysis, with applications to crop production and engineering. Prerequisites: Soils 1 or graduate standing, and Chemistry 12 or course in Physics. Lab. fee $2.25 per lab. cr. Mr. Muckenhirn.

123. FOREST SOILS. II; 3 cr. Lectures and one 2-hr. lab. period. Forest physiography. Physics, chemistry, biology and genesis of forest soils. Relation of forest vegetation to soil. Forest soil survey. Silviculture on different soils. Management of nursery soils. Prerequisites: Soils 1, Chemistry 1, Gen. Botany. Mr. Wilde.

125. SOIL AND LAND CLASSIFICATION: AGRICULTURAL CLIMATOLOGY. II; 3 cr. Lectures and field work in soil mapping. The principles of climatology, soil origin and land classification in relation to agriculture, including a study of the soils and climate of the chief foreign countries. Prerequisite: Soils 1 or graduate standing. Mr. Whitson.

126. FERTILIZERS AND SOIL MANAGEMENT. II; 2 cr. Lectures and discussions on the composition, manufacture, and characteristics of artificial fertilizers. Methods of application, deportment in the soil, and practical use in the management of soils. Prerequisite: Soils 1. Mr. Graul.

127. SOIL SCIENCE AND PLANT NUTRITION. I; 2 cr. Lectures and discussions. The constitution of the soil, especially as a medium for plant growth. The nature and importance of soil colloids. The newer applications of scientific principles to such problems as soil acidity, use of fertilizers, soil amendments, and toxic agents. Prerequisite: Soils 1 or graduate standing. Mr. Truog.

128. SEMINARY IN SOILS. I; 1 cr. Mr. Truog II; 1 cr. Mr. Whitson.

180. TOPICAL AND FIELD WORK. I, II; *cr. Staff.

200. RESEARCH. I, II; *cr. Lab. fee $2.25 per lab. cr. Staff.

VETERINARY SCIENCE

BURR ABRAHAM BEACH, D.V.M., *Professor of Veterinary Science, Chairman*
FREDERICK BROWN HADLEY, D.V.M., *Professor of Veterinary Science,*

CHESTER ALBERN HERRICK, Sc.D., *Associate Professor of Veterinary Science and Zoology*
EDWIN REINHOLD CARLSON, D.V.M., M.S., *Instructor in Veterinary Science*
LLOYD C. FERGUSON, D.V.M., *Instructor in Veterinary Science*

The subjects described below give students an appreciation of the various branches of veterinary science. They are taught largely by the laboratory method. Besides giving information needed for the intelligent care and management of sick animals, they aid advanced students to secure a knowledge of animal breeding, animal hygiene, animal pathology, animal parasitology and veterinary bacteriology.

The undergraduate subjects numbered from 1 to 100 are non-technical. The subjects with numbers above 100 are designed for graduate and advanced undergraduate students. Some of them are comparable with courses offered in a regular veterinary curriculum; others are especially suited to the needs of advanced students in the College of Agriculture and to those who contemplate qualifying for the combined degrees of Bachelor of Science and Doctor of Veterinary Medicine.

1. THE ANIMAL BODY. I; 3 cr. The structure, functions and derived products of the animal body. The student learns about the form, capacity and productivity of farm animals as well as the fundamentals relative to their feeding and breeding. Optional subject for all agricultural students. Lab. fee $4.50. Mr. Hadley.

2. NON-INFECTIOUS DISEASE OF LIVESTOCK. I; 2 cr. Their causes, symptoms, and prevention, including conformation and soundness. Mr. Hadley.

100. THESIS. Yr; 2 cr. Lab. fee $2.25 per lab. cr. Mr. Hadley, Mr. Beach, Mr. Herrick.

120. PARASITES OF DOMESTIC ANIMALS. I; 3 cr. Structure, life history, diagnosis and prevention of parasites of the lower animals. Prerequisite: Zool. 1 or Vet. Science 1. Lab. fee $5.00. Mr. Herrick.

123. INFECTIOUS DISEASES OF LIVESTOCK. II; 2 cr. Their causes, control and eradication. Prerequisite: A course in veterinary science or bacteriology. Mr. Hadley.

125. DISEASES OF POULTRY. II; 2 cr. A study of the more common diseases of poultry. Prerequisite: Vet. Science 1 or Poultry Husb. 1. Not offered 1938-39. Mr. Beach.

126. INFECTION AND IMMUNITY. II; 3 cr. An experimental study of the principles of infection and immunity. Prerequisite: A course in bacteriology. Offered 1938-39. Lab. fee $4.50. Mr. Hadley, Mr. Ferguson.

127. FUR FARMING. II (last half of semester); 1 cr. The theory and practice of propagating fur bearing animals. Emphasis will be placed on methods followed by successful fur farmers. Prerequisite: Sophomore standing. Mr. Hadley.

180. TOPICAL WORK. Yr; *cr. Assigned work for advanced students. Mr. Hadley and staff.

200. RESEARCH. Yr; 2 cr. Lab. fee $2.25 per lab. cr. Mr. Beach, Mr. Hadley, Mr. Herrick.

PART V—

THE UNDERGRADUATE SCHOOLS

LAW SCHOOL
MEDICAL SCHOOL
SCHOOL OF NURSING
SCHOOL OF EDUCATION

LAW SCHOOL

LLOYD K. GARRISON, DEAN (on leave I)

RAY ANDREWS BROWN, B.A., S.J.D., *Professor of Law*
CHARLES BUNN, B.A., LL.B., *Professor of Law*
RICHARD VALENTINE CAMPBELL, B.A., J.S.D., *Professor of Law*
NATHAN PAUL FEINSINGER, B.A., J.D., *Professor of Law*
ALFRED LEROY GAUSEWITZ, B.A., LL.B., LL.M., *Professor of Law*
HOWARD LEWIS HALL, B.A., LL.B., *Professor of Law*
WILLIAM HERBERT PAGE, B.A., LL.M., S.J.D., *Jackson Professor of Law*
WILLIAM GORHAM RICE, JR., M.A., S.J.D., *Professor of Law*
OLIVER SAMUEL RUNDELL, LL.B., *Professor of Law*
JACOB HENRY BEUSCHER, B.A., J.S.D., *Associate Professor of Law*
JOHN CLOES STEDMAN, B.A., LL.B., *Assistant Professor of Law*
FRANK TILDEN BOESEL, Ph.D., LL.B., *Lecturer in Law*
WILLIAM WADE BOARDMAN, LL.B., *Lecturer in Law*
JAMES WILARD HURST, B.A., LL.B., *Assistant Professor of Law*
PHILLIP GREGORY MARSHALL, LL.B., *Law Librarian and Instructor in Legal Bibliography*
MRS. FLORENCE LANNING, B.A., LL.B., *Assistant Law Librarian and Instructor in Legal Bibliography*

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

This subject, so far as it bears upon entrance into the University, is fully discussed under the general heading of Admission, page 13.

CANDIDATES FOR THE DEGREE. Applicants for admission to the Law School who expect to become candidates for the degree of Bachelor of Laws are required to have satisfactorily completed three full years of college work, equivalent to the first three years of either of the General Courses (B.A. or Ph.B.) in the College of Letters and Science of this University. (See Letters and Science bulletin.) The satisfactory completion of three years of work in a general

course toward a bachelor's degree in arts, philosophy, or science in any college or university officially recognized by the University of Wisconsin will be regarded as satisfying this requirement. Applicants for admission to the Law School from such a college or university should send a transcript of their credits, for evaluation, to the *Chairman of the Committee on Advanced Standing*, Professor C. A. Smith, Bascom Hall, University of Wisconsin.

In addition, applicants for admission, beginning with the entering law class in September 1938, must have either:

(a) A grade-point average of at least 1.3 (or, in the case of a student entering the law school from another institution, its equivalent); or

(b) A bachelor's degree, with a grade-point average of at least 1 (or, in the case of a student entering the law school from another institution, its equivalent).

This requirement, made effective by the Board of Regents in June, 1937, on the recommendation of the law faculty and with the approval of the University faculty, is based upon studies extending over several years which demonstrate that, as a general rule, pre-law students with mediocre academic records do not do well in Law School, and that, as a general rule, students with poor law school records do not do well in practice. There are, of course, many exceptions and therefore no absolute bar to admission has been made, a student with a bachelor's degree being permitted to enter with a grade-point average of at least 1. The law faculty feels, however, that a student with a pre-law average below 1.3, even if he has a bachelor's degree, should hesitate to enter the Law School unless he has a very strong bent for law, or is reasonably assured of a position in practice, or desires to study law as a training for business, or was hindered in his pre-law work by ill-health or other special circumstances.

For the information of students desiring to enter the Law School from institutions other than the University of Wisconsin, a 1.3 grade-point average in the University represents grades in the proportion of three B's to every seven C's.

Advanced Standing. Applicants who are qualified to enter the Law School as candidates for a degree, and who have satisfactorily completed one or more years of resident work in a law school of good standing, having a three-year course, will be given equivalent rank in this School upon presenting properly authenticated certificates of such work. The right is reserved to give credit only if the student's work in the School is satisfactory, and, in the case of students whose last year only, or whose last year and one-third is spent in this Law School, a weighted average of at least 80 in all of his work at this School will be required for graduation. All persons who intend to apply for advanced standing under the above rule should, at least two weeks before the opening of the particular session which the student desires to attend, forward a transcript of their law credits to the Dean of the Law School and a transcript of their pre-law credits to the Chairman of the Committee on Advanced Standing.

Special Students. Applicants for admission who are not candidates for the law degree may be admitted as special students provided they have met the general university entrance requirements and have satisfactorily completed two full years of college work, equivalent to the first two years of a general course in the College of Letters and Science at this University. Such students are subject to all the regulations and requirements of the School excepting those pertaining to graduation, and they are entitled to all the instructional facilities af-

forded other students. An opportunity is thus given to prepare for bar examinations in this and other states. A special student, who after entering the Law School chooses to complete the pre-law studies required of candidates for a law degree, *may not count toward that degree any law credits earned prior to the completion of such studies.* Applicants for admission as special law students whose pre-law work has not been taken in this University should send a transcript of their credits to the chairman of the Committee on Advanced Standing.

ENTRANCE IN FEBRUARY. Students with a grade-point average of at least 2.00 or a bachelor's degree with a grade-point average of at least 1. (or in the case of students entering from institutions other than the University of Wisconsin, its equivalent) may, with the special permission of the Dean, enter the Law School in February.

FEES AND EXPENSES

See section entitled Student Expense, beginning on page 34.

PRE-LEGAL STUDIES

The faculty believes that a student who has a particular bent should major in the department of his choice, whatever that is. The recommendations that follow are intended for those students who know that they desire ultimately to study and practice law, but are not conscious of any other definite aptitude or desire.

On this basis, the law faculty recommends to pre-legal students (in the College of Letters and Science at Wisconsin) the following:

I. B.A. GENERAL COURSE REQUIREMENTS

(b) Science—Mathematics—History.
We recommend that History 5 be taken under this requirement.
If science is taken, we recommend that it be in survey courses.

II. PH.B. GENERAL COURSE REQUIREMENTS

(b) Science and mathematics.
We recommend combination 3 or 4 (10-10 or 12-8).

(c) Philosophy and psychology, mathematics, history, foreign language.
We recommend: Philosophy and psychology 10 credits, to include Philosophy 11. History, 10 credits, to include History 5.

III. MAJOR (EITHER DEGREE)

We recommend the Major in American Institutions, in the Division of Social Sciences. Within the requirements of this major (for which see the announcement of the College of Letters and Science) we recommend the following choices:

1. Ten credits of history courses open to freshmen, or
History 5 and 141 (total 12 credits).

2. Six credits in American History.
One of the following courses, to be taken throughout the Junior year:

111. History of the West.
116. American Colonial History.
117. American Constitutional History.
122. American Economic Life.
124. Recent History of the United States.

3. Courses numbered under 100 in other major departments. Only six credits of such courses may be counted toward the major. But, since the courses in question are largely prerequisite to later work in the departments concerned, and are important in themselves, we recommend that students use this requirement and their available electives to take as many as possible of the following before the end of the sophomore year:

Soc. 46. Introduction to Anthropology
Econ. 1a. General Economics
Phil. 11. Logic, or Phil. 25. Philosophy and the American Enterprise
Pol. Sci. 7. American Government.

4. Courses numbered over 100 in the major departments. Twenty-three credits, to be earned in three departments. We recommend a selection from the following courses. This selection is purely suggestive. Many courses included in the major have been omitted. Their omission is not based on any judgment as to their intrinsic value, and students with a taste for any omitted courses are urged to take them. The list below merely represents those courses which, in the judgment of the law faculty, are most likely to aid in an understanding of the forces and concepts which shape and color the law.

Anthropology and Sociology

132. Social Statistics
139. Social Psychology
140. General Sociology
161. Criminology and Penology

Economics

103. Public Expenditures and Public Debts
117. Land Economics
119. Evolution of Industry
122. Labor Problems
124. Taxation
133. Financial History of the U. S.
137. Corporation Finance
142. Public Utilities
146. Government and Business
174. The Labor Market
191. The Credit System

Philosophy

111. Applied Logic
120. Philosophy of Science
132. History of Modern Philosophy
139. American Philosophers
200. Development of American Thought

Political Science

125. World Politics, or
137. International Organizations and the League of Nations
139. State Government
143. Public Administration
165-6. American Political Thought

IV. ELECTIVES

We have already recommended that some electives be used in the sophomore year for introductory courses in social science departments (III, 3 above). For students taking the combined course, this substantially exhausts available electives. Where the combined course is not taken, or for special reasons other electives are available, we recommend:

For Ph.B. students, a foreign language.
For B.A. students, literature.
For either group, Econ. 105, Money and Banking.

V. SEQUENCES

Under these recommendations, a typical sequence for a pre-law student in the combined course would be as follows:

Freshman Year

	B.A.	Ph.B.
English 1	6	6
Science	10	10
Foreign Language	8	
Mathematics		8
History 5	6	6
	30	30

Sophomore Year

English 2		4
English 33	4	
Foreign Language	8	
Science or Math.		2 or 3
History 141	6	6
Phil. 11 (Logic)	3	3
Other Philosophy and Psychology electives		7
Anthropology 46	3	3
Political Science 7	3	3
Economics 1a	4	4
	31	32 or 33

Junior Year

	Both sequences
Courses in American History numbered above 100	6
Courses numbered above 100 in three major departments (from the list)	24
	30

Senior Year

	Both sequences
Law School 1st year	26
L. & S. electives, or completion of general course or major requirements if not done before, and completion of 120 credits	--

COMBINED COURSE: LETTERS AND SCIENCE, AND LAW

As described in detail in the Letters and Science bulletin, students of that college who have completed the requirements of the first three years of one of the general courses may, in their senior year, elect the subjects required of first-year students in the Law School and credit this work toward both the arts and the law degrees. By so arranging his work, a student may secure his bachelor's degree at the end of four years and his LL.B. degree at the end of an additional two years, plus the period of office apprenticeship as described below under the heading of Requirements for Graduation.

COMBINED COURSES: ENGINEERING AND LAW

By arrangement with the College of Engineering, students who desire to obtain a training in the fundamental principles both of engineering and of law may, by pursuing the Engineering-Law courses, qualify for the degree of Bachelor of Science in Engineering at the end of four years, and for the degree of Bachelor of Laws at the end of six years, including attendance at one ten-weeks summer session of the Law School. For the details of this plan students should consult the catalogue of the Engineering School.

Beginning with the academic year 1936-37 a course in patent law was given which should be of particular interest to the students with engineering training.

STUDIES OUTSIDE THE LAW SCHOOL

Students of the Law School may pursue, without additional fees, studies in other departments of the University for which they are prepared insofar 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. Credit toward the law degree is granted for Economics 108. No credit toward the law degree is given for other studies taken outside the Law School.

REQUIREMENTS FOR GRADUATION

The degree of Bachelor of Laws will be conferred upon all candidates who are at least 21 years of age, who are of good character, who, in the judgment of the Faculty, possess satisfactory legal attainments, and who have complied with the following conditions:

(1) Completion of courses totaling at least 74 credits with a weighted average of 77.

(2) Residence of at least three years in law schools of good standing, the last year at least being in this School. A minimum of 10 law credits, or a minimum of 12 credits of which at least 7 must be law credits, must be earned in a semester to count that semester as a full half-year of residence in the Law School. Where less than these minimum credits are earned in a semester, partial residence will be allowed depending upon the amount of work taken. A full summer session in law (described hereinafter) counts for one-third of a year in residence.

(3) An apprenticeship of not less than six months in a law office, execpt as provided below. This requirement must be satisfied at a time when the candidate is not in attendance upon the University. At the option of the candidate the requirement may be met by two periods of not less than three months each. The requirement must be entirely absolved after the student shall have received credit for not less than twenty semester hours in the Law School. Credit for office study will not be granted unless the student complies with the following regulations: (a) At the beginning of the clerkship, he must file a certificate by his preceptor stating the date on which the clerkship began. (b) A like certificate showing the date of completion of the clerkship must be filed at the completion of the period. (c) A monthly report, signed by the student and endorsed by the preceptor, showing the kind and amount of work assigned to the student during the period of the report must also be filed.

A candidate for graduation who has obtained credit for the courses in evidence, pleading, practice, and practice court, who has obtained at least 82 credits with a weighted average of 77, and who has a residence of at least three years and three months in law schools of good standing, will be relieved from the requirement of office clerkship. Students who, because of schedule difficulties, or for other special reasons, cannot complete all the courses in evidence, pleading, practice, and practice court, may be exempted from this requirement by the Dean.

(4) Completion of a paper, dealing with some field of law, to be in the form of a Law Review leading article and to be approved by a member of the faculty.

Students completing the course with distinguished excellence may be recommended for the degree with honor.

ADMISSION TO THE BAR

The statutes of the State provide in effect that any resident graduate of the Law Department of the University of Wisconsin shall be admitted to practice in all the courts of this State by the Supreme Court upon the presentation of his diploma, and may be admitted when the Supreme Court is not in session by an order signed by one of the justices thereof and filed with the clerk of said court. (R.S. Wis., sec. 256.28.)

Under this statute and a rule of the federal court it is customary for the graduating class, on motion of the Dean of the Law School, to be admitted to the Supreme Court of the State and to the district court of the United States (Western district) immediately upon graduation. This admits them to the bar of any court of record in Wisconsin.

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. 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 Evidence, four credits; Office Practice, two credits; Pleading, four credits; Practice, four credits; Practice Court, 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, and to give facility in their application 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. In Practice Court, the student prepares pleadings in assigned cases and carries a cause of action through the various steps from its inception to the final judgment. The course in office practice involves the drafting of ordinary legal documents, such as bills of sale, deeds, wills, and articles of incorporation, and the examination of abstracts of title.

THE ORDER OF THE COIF

The Order of the Coif is an honorary legal society having for its purpose the encouragement of scholarship and the advancement of ethical standards in the legal profession. Membership in it is dependent entirely upon the attainment of high scholastic standing. The name of the society is taken from the Order of Sergeants of the English Bar. This order is now extinct, but during

its day it represented a select group of lawyers eminent for learning and professional attainments. The society has chapters in most of the leading law schools of the country. The Wisconsin chapter was established in 1907. Candidates for the law degree are elected to membership during the last semester of their third year.

LAW FELLOWSHIP AND THE S.J.D. DEGREE

The Regents have created three fellowships in the Law School, awarded to outstanding law seniors who desire to return to the school for a fourth year leading to the submission of a thesis in some field of law and the granting of the degree of Doctor of Juridical Science (S.J.D.). The stipend is $600. The work of the fourth year consists partly of the preparation of the thesis and partly of apprenticeship work in the offices of various state commissions, such as the Public Service Commission, the Tax Commission, etc. No one but a law fellow may be a candidate for an S.J.D. degree.

WISCONSIN LAW REVIEW

The *Wisconsin Law Review* was established in 1920 by authority of the Regents. The *Review* appears quarterly, and deals primarily with questions in Wisconsin law and legal problems of particular interest to Wisconsin lawyers. The Board of Editors consists of the law faculty and a board of fourteen student editors selected from the student body. Eligibility to the board is determined largely by scholastic standings.

LIBRARY

The library of the Law School contains 50,000 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; Australian reports; the Reporter system; the various series of selected cases, as: American Decisions; American Reports; American State Reports; Lawyers Reports Annotated; Ruling Case Law; Corpis Juris; American Law Reports; British Ruling Cases; 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 textbooks, statutes, digests, etc.

MORTIMER M. JACKSON PROFESSORSHIP OF LAW

The late Judge Mortimer M. Jackson by his will gave $20,000 to the University, the income to be used to maintain a chair of law. The Regents in 1890 formally established the Mortimer M. Jackson Professorship of Law. Judge Jairus H. Carpenter, for many years Dean of the Law School, was the first incumbent of this chair, which he held until his death in 1913. Professor Howard L. Smith held the professorship until his retirement in June 1926, and Dean Harry S. Richards from 1926 until his death in April 1929. Since June 1929, Professor W. H. Page has been the incumbent.

SUMMER SESSION

The summer session of the Law School extends over a period of ten weeks. The work is carried on in the same manner and with the same thoroughness as during the regular session. Courses are arranged to meet the needs of beginning and advanced students. The courses are the equivalents of those given in the first, second, and third years of the long session and carry full credit toward

the law degree. Full work during the summer session consists of twelve hours per week. Written examinations are held at the completion of the courses. Students successfully completing courses aggregating twelve hours per week for the summer will receive credit for one-third of a regular academic year's work. The session thus enables students of this and other law schools and teachers or students in the College of Letters and Science who have completed the equivalent of three years of college work to shorten considerably the calendar period of residence required here and elsewhere for the law degree. The courses are so arranged as to be of service to practicing lawyers who may wish to pursue systematic investigation of particular subjects.

During the summer of 1938 the following courses will be offered:

For first-year students: Civil Procedure and Remedies; Personal Property.

For second- and third-year students: Administrative Law; Constitutional Law; Conveyancing; Damages; Labor Law; Municipal Corporations; Quasi-Contracts; Suretyship; Trusts.

COURSES OF INSTRUCTION

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

The Law School courses for any given academic year are not finally arranged until the preceding May or June. They are printed in a special Law School catalogue which appears in July of each year, a copy of which may be obtained by writing to the Law School.

FIRST YEAR

Civil Procedure and Remedies. Yr; 3 cr. I, 2 cr. II. Mr. Beuscher.
Contracts. Yr; 3 cr. Mr. Page.
Criminal Law. Yr; 2 cr. Mr. Gausewitz.
Introduction to Law. I; 1 cr. Mr. Garrison.
Personal Property. I; 2 cr. Mr. Stedman.
Real Property. II; 2 cr. Mr. Brown.
Torts. Yr; 3 cr. Mr. Campbell.

SECOND AND THIRD YEARS

Accounting Principles. Yr; 3 cr. (total) Mr. Schuck.
Administrative Law. II; 2 cr. Mr. Brown.
Agency. II; 1 cr. Mr. Campbell.
Anti-Trusts. II; 3 cr. Mr. Bunn.
Argument of Cases. Yr; 1 cr. (total) Mr. Stedman and Law Fellows.
Automobile Accidents II; 2 cr. Mr. Campbell.
Bankruptcy. II; 1 cr. Mr. Hall.
Bills and Notes. I; 4 cr. Mr. Feinsinger.
Conflict of Laws. II; 3 cr. Mr. Page.
Constitutional Law. I; 4 cr. Mr. Brown.
Conveyancing. I; 3 cr. Mr. Rundell.
Co-operative Associations. II; 1 cr. Mr. Bunn.
Corporations. II; 4 cr. Mr. Garrison.
Creditors' Rights. I; 3 cr. Mr. Hall.

DAMAGES. I; 2 cr. Mr. Stedman.
EVIDENCE. Yr; 2 cr. Mr. Gausewitz.
FUTURE INTERESTS. I; 4 cr. Mr. Rundell.
HISTORY OF LAW. I; 2 cr. Mr. Page.
INSURANCE. II; 3 cr. Mr. Feinsinger.
INTERNATIONAL LAW. I; 2 cr. Mr. Rice.
JURISPRUDENCE. II; 2 cr. Mr. Beuscher and Mr. Gausewitz.
LABOR LAW. II; 2 cr. Mr. Feinsinger.
LEGISLATION. I; 2 cr. Mr. Hurst.
MORTGAGES. II; 3 cr. Mr. Rundell.
MUNICIPAL CORPORATIONS. II; 2 cr. Mr. Hall.
OFFICE PRACTICE. II; 2 cr. Mr. Gausewitz.
PARTNERSHIP. II; 1 cr. Mr. Feinsinger.
PATENT LAW. II; 2 cr. Mr. Stedman.
PERSONS. I; 2 cr. Mr. Feinsinger.
PLEADING. Yr; 2 cr. Mr. Boesel.
PRACTICE. Yr; 2 cr. Mr. Boardman.
PRACTICE COURT. II; 1 cr. Mr. Beuscher.
PUBLIC UTILITIES. II; 3 cr. Mr. Beuscher.
QUASI-CONTRACTS. II; 2 cr. Mr. Feinsinger.
SALES. I; 3 cr. Mr. Hall.
SERVITUDES. II; 3 cr. Mr. Rundell.
SURETYSHIP. I; 2 cr. Mr. Rundell.
TAXATION. II; 2 cr. Mr. Brown.
TRADE REGULATION. II; 3 cr. Mr. Hurst.
TRUSTS. II; 4 cr. Mr. Hall.
WILLS. I; 3 cr. Mr. Page.

In addition, seminars and research groups are especially arranged each year.

MEDICAL SCHOOL

WILLIAM S. MIDDLETON, DEAN

ADMISSION

It is understood that all applicants for admission to the Medical School must have fulfilled the general entrance requirements of the University, either by satisfactory completion of certain prescribed work in some recognized secondary school, including graduation therefrom, or by passing the entrance examinations. See Admission, page 34, for details. They must also have completed three years of premedical studies in college. See outline of requirements on pages 80-82.

ADMISSION WITH ADVANCED STANDING

FIRST-YEAR CLASS: A student wishing to apply for admission to this class should send an official copy of his premedical credentials to the Dean of the Medical School not later than March 1 of the year in which he wishes to matriculate. If the credentials are satisfactory, an application blank will be sent to the candidate for admission, to be filled out and returned to the Dean of the Medical School.

All students entering from other institutions are required to pass a reading knowledge examination in either German or French given by the appropriate department at Wisconsin before the time of matriculation.

SECOND-YEAR CLASS: There is seldom a vacancy in this class and students from other institutions are not encouraged to apply for admission.

THIRD AND FOURTH-YEAR CLASSES: At the present time no applications to these classes are accepted.

MEDICAL SCHOOL CURRICULA

The university curriculum for candidates for the degree of Doctor of Medicine is divisible into three parts, premedical, preclinical and clinical. At the University of Wisconsin three years are required for the premedical work and two years each for the preclinical and clinical.

COURSES OF STUDY AND DEGREES

The Medical School offers a four-year course leading to the degree of Doctor of Medicine. The requirements are outlined below. The Graduate School offers the degrees of Master of Arts, Master of Science, Master of Public Health, Doctor of Public Health, and Doctor of Philosophy to students who complete their requirements for these degrees by work in the medical sciences. The College of Letters and Science grants (1) the degree of Bachelor of Science (Medical Science) to students who complete three years of prescribed premedical work and one year of the regular medical course; (2) the degree of Bachelor of Arts to students who complete the regular requirements for this degree as described on pages 80-82 and who during their senior year complete a major in medical science; (3) the degree of Bachelor of Science (Medical Technology)to students who complete the requirements as outlined on page 371.

MEDICAL SCIENCE MAJORS

A major in Medical Science is authorized for students in the General Courses who pursue the regular three-year premedical sequence and meet both their premedical and special degree requirements. In their senior year such students register in the Medical School as well as in the College of Letters and Science. The work of the major consists of a minimum of 25 credits in closely

related medical subjects, and according to the degree requirements selected they may qualify for the B.A. or the B.S. degree. Such students must earn at least 90 credits in Letters and Science and meet all the regular premedical requirements (8-10 credits each in general chemistry, biology, and physics, at least 4 credits in organic chemistry, one year of college Latin or its high-school equivalent, and a reading knowledge of French or German established by credits or examinations) during the first years.

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

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

MEDICAL COURSES

Two courses are offered, a two-year course and a four-year course.

The *two-year course,* established in 1907, covers the preclinical half only of a four-year medical course and embraces the basal and intermediate groups of studies. Combined with the three years of premedical work, this course leads to the degree of Bachelor of Arts or Bachelor of Science (Medical Science). On completion of this course the student is expected to go elsewhere to complete the medical curriculum. Owing to the fact that opportunities for admission to the third year are few in most medical schools, this course is ordinarily limited to fifty students. Selection is made on the basis of premedical scholarship. Students are not promoted to the second year of the course until the completion of all of the required work of the first year with grades of C or better.

The *four-year course,* established in 1925, embraces the basal and intermediate groups of the two-year course and in addition two years of clinical instruction at Madison and at the associate clinical teaching centers. Students are required to obtain a bachelor's degree before being admitted to the two years of clinical instruction. Upon the successful completion of the latter, the degree of Doctor of Medicine is granted. Owing to the necessity of restricting clinical instruction at the Wisconsin General Hospital so as to make such instruction facilitate, not hamper, care of patients, this four-year class is limited to fifty students or fewer. Selection is made on the basis of premedical scholarship. Students are not promoted from one year of the course to the next unless the required work of the year is completed with grades of C and B or better in all subjects.

Transfer from the two-year to the four-year course can be made only in case vacancies occur in the latter. When such transfers take place, selection of students to fill the vacancies will be made on the basis of scholarship and character.

COURSE IN MEDICINE

LEADING TO THE DEGREE OF DOCTOR OF MEDICINE

FIRST YEAR

First Semester	Credits	Second Semester	Credits
Anatomy 110—Histology and organology	5	Anatomy 121—Gross anatomy	6
Anatomy 121—Gross anatomy	7	Anatomy 126—Neural anatomy	5
Physiological Chemistry 104	4	Physiology 105—Medical physiology	7
Physiology 105—Medical physiology	2		
	18		18

SECOND YEAR

	Credits
Bact. 102—Medical bacteriology	5
Hygiene 101—Public health	2
*Pathology 101—General pathology	4
Pathology 101b—Special pathology	2
Medicine 110—Physical diagnosis	3
†Thesis or problem course	2-4
	18-20

	Credits
Anatomy 102—Clinical laboratory diagnosis	3
Medicine 111—Medical diagnosis	2
Pathology 101b—Special pathology	2
Pharmacology 104	4
Surgery 102—Surgical clinics	1
Surgery 103—Elements of surgery	1
†Thesis or problem course	2-4
	15-17

THIRD YEAR

	Credits
Medicine 301—Third-year medicine	6
Medicine 305—Therapeutics	1
Medicine 310—Pediatrics	1
Medicine 315—Dermatology	1
Surgery 301—Third-year surgery	6
Surgery 310—Ophthalmology	1
Surgery 330—Obstetrics and gynecology	2
	18

	Credits
Medicine 301—Third-year medicine	5
Medicine 312—Neuropsychiatry	2
Surgery 301—Third-year surgery	4
Surgery 311—Rhinology, otolaryngology	1
Surgery 315—Orthopedics	1
Surgery 325—Urology	1
Surgery 330—Obstetrics and gynecology	1
Surgery 314—Plastic surgery	1
Surgery 316—Physical therapy	1
Surgery 320—Radiography and radiotherapy	1
	18

FOURTH YEAR

	Credits
Hygiene 401—Sanitation and public health	1
Medicine 401—Internal medicine	4.5
Medicine 410—Pediatrics	2.5
Medicine 412—Neuropsychiatry	3
Medicine 415—Dermatology	1
Medicine 420—Medical jurisprudence and ethics	1
Surgery 406—Obstetrics and gynecology	2
Surgery 416—Applied physical therapy	1
Surgery 405—Applied radiology	1
Surgery 401—General surgery	3
Surgery 410—Ophthalmology	1
Surgery 411—Rhinology, laryngology, otology	1
Surgery 425—Urology	2
Surgery 415—Orthopedic surgery	1
Thesis	3
Associate quarter	12
Milwaukee quarter	8
	48

*Until Christmas recess.
†A total of 4 credits required.

COURSE IN MEDICAL TECHNOLOGY

A four-year course leading to the degree of Bachelor of Science (Medical Technology) has recently been established in the College of Letters and Science.

For entrance to this course a student must satisfy the general admission requirements of the University. This curriculum is intended for those students who desire to prepare for technical work in laboratories of clinical diagnosis located in hospitals, private clinics or elsewhere.

REQUIREMENTS. A total of 120 credits and 120 grade-points is required for this degree, including a minimum of 90 credits of general required and elective work and 30 credits in the major, medical technology. The foreign language requirement may be satisfied either by passing the intermediate examination in French or German, or by completing the fourth semester of French or German at the University of Wisconsin with a grade of C or better.

The fourth year is devoted entirely to the study of the specialized medical subjects required for the major and to practical work in the laboratories of the hospital. The work of the first semester of the fourth year begins September first, ceases for one and one half weeks at Christmas time and then instruction continues through the university final examination period. The second semester starts the last week in January and continues through the second week in June with no spring recess. The summer months are spent in the laboratories of the Wisconsin General Hospital. No academic credit is given for the summer work, but it is required for completion of the course. The laoratory fee for the fourth year is $25 per semester.

For additional information concerning the course, inquiry should be made to Dr. W. J. Meek, Assistant Dean of the Medical School.

MEDICAL TECHNOLOGY CURRICULUM

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

FRESHMAN YEAR

First Semester	Credits	Second Semester	Credits
English 1a—Freshman English	3	English 1b—Freshman English	3
Chemistry 1a—General chemistry	5	Chemistry 1b—Qualitative analysis	5
French 1a or German 1a	4	French 1b or German 1b	4
Physics 65—General physics	3	Physics 65—General physics	3
Physical activity requirement	0-(1)	Physical activity requirement	0-(1)
	15-16		15-16

SOPHOMORE YEAR

English 30a, 33a, or 2a	2-3	English 30b, 33b, or 2b	2-3
French 10a or German 2a	3-4	French 10b or German 2b	3-4
Physiology 1—Human physiology	4	Chemistry 20—Organic chemistry	2
Zoology 1—Animal biology	5	Chemistry 21—Organic chemistry	2
		Zool. 119—Animal parasites of man	3
		Electives	2-3
	14-16		14-16

JUNIOR YEAR

Physiological chemistry 104	4	Physiological chemistry 117	4
Medical bacteriology 102	5	Medical bacteriology 104	3
History 4a—History of the U. S.	3	History 4b—History of the U. S.	3
Electives	3-4	Electives	5-6
	15-16		15-16

SENIOR YEAR

Med. Tech. 101—Urine analysis	5	Med. Tech. 111—Applied serology	4
Med. Tech. 102—Normal hematology	4	Med. Tech. 112—Applied parasitology	1
Med. Tech. 103—Special hematology	3	Med. Tech. 113—Clinical chemistry	5
Med. Tech. 104—Applied bacteriology	4	Med. Tech. 114—Microtechnique	3
		Med. Tech. 115—Electrocardiography	2
	16		15

COURSE FOR PHYSICAL THERAPY TECHNICIANS

The course for physical therapy technicians has been approved by the Council on Medical Education and Hospitals of the American Medical Association. Its duration is usually one year but not less than nine months or a minimum of three summer sessions, except in cases where credit is granted for work done in another acceptable institution.

ADMISSION. Candidates for admission must either have graduated from an accredited school of nursing or an accredited school of physical education. At present only students registered in the Graduate School in preparation for the degree of Master of Science in Physical Therapy are accepted in this course.

CURRICULUM. The curriculum includes anatomy, clinical practice, electrotherapy, ethics and administration, hydrotherapy, massage, pathology, physiology, principles of physical therapy, psychology, therapeutic exercise, and electives.

CERTIFICATE A certificate is issued by the Medical School at the end of the course to those who have successfully fulfilled all of the requirements including an extensive written, oral and practical final examination.

MASTER OF SCIENCE DEGREE IN PHYSICAL THERAPY

Physical therapy technicians who hold a certificate in physical therapy of one of the schools accredited by the American Medical Association may enroll in the Graduate School of the University of Wisconsin after fulfilling all necessary requirements and work towards a master's degree in physical therapy. While the courses to be taken toward this degree may vary with the individual student, depending on the credits already obtained, the work usually requires one year and includes the following: Advanced anatomy or physiology—8 credits, Advanced physical therapy (practical)—6 credits, Thesis—4 credits. Undergraduate chemistry, physics, zoology and physiology or anatomy are prerequisites. In special cases it is possible to arrange for part of the work to be taken during summer sessions although it is usually more desirable for students to attend the regular session.

For additional information regarding this course, write to the Chairman of the Department of Radiology and Physical Therapy, Service Memorial Institutes Building, University of Wisconsin, Madison, Wisconsin.

DEPARTMENTS OF INSTRUCTION

For a description of the courses in botany, zoology, chemistry, physics, psychology, and languages, see departmental announcements in the College of Letters and Science.

Abbreviations used in the announcement of courses:

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

Courses numbered from 1 through 100 are open for credit to undergraduates only; from 101 to 199 to both undergraduates and graduates; over 200 to graduates only, or very exceptionally to advanced undergraduates.

ANATOMY

Walter Edward Sullivan, Ph.D., *Professor of Anatomy, Chairman*
William Snow Miller M.D., Sc.D., *Professor of Anatomy, Emeritus*
Theodore Hieronymus Bast, Ph.D., *Professor of Anatomy*
Frederick Denkmar Geist, M.D., *Associate Professor of Anatomy*
Otto Axel Mortenson, M.S., M.D., *Associate Professor of Anatomy*
Harland Winfield Mossman, Ph.D., *Associate Professor of Anatomy*
Charles Mandelert Ihle, B.S., M.D., *Instructor in Anatomy*
George John Máloof, B.A., M.D., *Instructor in Physical Education*
John Holden Robbins, B.S., M.D., *Instructor in Anatomy*

There is offered a group of courses planned for a comprehensive view of the gross and miscroscopic anatomy and embryology of mammals, with especial reference to man. Opportunities are offered for advanced work and research. The laboratory is thoroughly equipped with apparatus, models, books, and materials.

36. Human Anatomy. II; 6 cr. For students of physical education. An opportunity to dissect is offered. Prerequisite: Zoology 3. Lab. fee $10.00. Dr. Sullivan, Mrs. Eyster.

39. Physical Education Anatomy. I; 4 cr. Lectures and laboratory work for students of physical education. Prerequisite: Zoology 1. Lab. fee $5.00. Dr. Maloof.

110. Histology and Organology. I; 5 cr. The study of the tissues, followed by a study of the structure of the mammalian organs. Histogenesis and some organogenesis are included. Prerequisites: Junior standing, Zoology 1. Lab. fee $15.00. Dr. Bast, Dr. Geist, and staff.

121. Human Anatomy. I, 7 cr.; II, 6 cr. In this course a thorough training is offered in the dissection of the human body and in descriptive human anatomy. Organogenesis is in part included. Prerequisites: Junior standing, Zoology 1. Lab. fee $17.50 per semester. Dr. Sullivan, Dr. Mossman, Dr. Mortenson.

122. Applied Anatomy. II; 2-4 cr. This course is given with the cooperation of the clinical staff. Dissections, cross-sections, models, and charts are used to review the anatomy of the human body. Along with this is a discussion of the clinical significance of the structures in question. Prerequisite: Anatomy 121. Lab. fee $5.00. Dr. Sullivan, Dr. Schmidt.

126. The Anatomy of the Nervous System. II; 5 cr. Dissection of the human brain and study of the microscopic anatomy of the central nervous system and sense organs. Neurogenesis is included in this course. Prerequisite: Anatomy 110. Lab. fee $10.00. Dr. Geist, Dr. Bast, and staff.

200. Research. *cr. 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. The department also welcomes independent investigators who wish to make use of its facilities for conducting research in anatomy. Lab. fee $5.00. If special material is required in excess of $5.00, an additional fee may be charged.

MEDICAL BACTERIOLOGY

Paul Franklin Clark, Ph.D., *Professor of Medical Bacteriology, Chairman*
Frances Elizabeth Holford, Ph.D., *Assistant Professor of Medical Bacteriology*
Horace Raymond Getz, B.S., M.D., *Instructor in Medical Bacteriology*

4. Bacteriology for Nurses. II; 3 cr. Lab. fee $6.00. Open only to students in the course in nursing. Dr. Getz.

100. Senior Thesis. Yr; 2 cr. Lab. fee $2.00 per cr. Staff.

102. Medical Bacteriology. I; 5 cr. This course, which is especially designed for medical students, considers the bacteria, fungi, filterable viruses, protozoa and helminths that are concerned in the production of human disease, together with the problems of immunology. Prerequisites: Second-year standing in Medical School; or Physiological Chemistry 104 and 1 year Biology; or Agricultural Bacteriology 1, 2, or 4. Lab. fee. $15.00. Dr. Clark and staff.

104. Immunology. II; 3-4 cr. May be taken as a thesis course. It includes experimental work with the commonly employed clinical serological tests such as the Wassermann reaction, as well as laboratory experiments with the various antibody and cellular factors in resistance. Prerequisite: Medical Bacteriology 102. Lab. fee $8.00 to $10.00. Dr. Holford.

106. Advanced Bacteriology. I, II; *cr. Filterable viruses. Lab. fee $3.00 per cr. Dr. Clark.

108. Bacteriology Seminary. Yr; 1 cr. Dr. Clark

200. Graduate Research. Yr; *cr. Lab. fee $5.00. Staff.

HYGIENE

In conjunction with the staffs of the State Laboratory of Hygiene, the Wisconsin Psychiatric Institute, the State Board of Health, and the Boards of

Health of the cities of Milwaukee and Madison, courses in hygiene are offered by members of the faculty of the Medical School under the general supervision of Dr. Stovall.

101. PUBLIC HEALTH. I; 2 cr. Lectures and field work for medical students. Given in conjunction with Bacteriology 102. Prerequisite: Second-year medical standing. Dr. Clark, Dr. Harper, Dr. Stovall.

401. PRACTICE FIELD WORK. I, II; 1 cr. Prerequisite: Fourth-year medical standing. Dr. Stovall.

MEDICAL DIVISION

GENERAL MEDICINE

JOSEPH SPRAGG EVANS, B.A., M.D., *Professor of Medicine, Chairman*
LLEWELLYN RATHBUN COLE, B.A., M.D., *Professor of Clinical Medicine*
WILLIAM SHAINLINE MIDDLETON, M.D., *Professor of Medicine*
ELMER LOUIS SEVRINGHAUS, M.A., M.D., *Professor of Medicine*
ROBERT VAN VALZAH, B.A., M.D., *Professor of Medicine* (on leave yr.)
OVID OTTO MEYER, B.S., M.D., *Associate Professor of Medicine*
KARVER LOUIS PUESTOW, M.S., M.D., *Associate Professor of Medicine*
WILLIAM ATWOOD MOWRY, M.D., *Clinical Professor of Medicine*
FRANK LAWRENCE WESTON, B.S., M.D., *Associate Professor of Clinical Medicine*
JOHN EDWARDS BENTLY, B.S., M.D., *Assistant Professor of Clinical Medicine*
MARIE LOUISE CARNS, M.A., M.D., *Assistant Professor of Medicine*
CHESTER MOTT KURTZ, M.S., M.D., *Assistant Professor of Medicine*
FREDERICK MIDELFART, B.A., M.D., *Assistant Professor of Medicine*
WILLIAM HANLON OATWAY, B.S., M.D., *Assistant Professor of Medicine*
HARRY MAXWELL KAY, M.D., *Clinical Associate in Medicine*
RUTH CALDWELL FOSTER, B.A., M.D., *Assistant Professor of Clinical Medicine*
RUBEN HAROLD STIEHM, B.S., M.D., *Assistant Professor of Clinical Medicine*
SAMUEL HAMILTON CHASE, D.D.S., *Lecturer in Oral Hygiene*
WALTER CLARENCE REINEKING, B.A., M.D., *Lecturer on Tuberculosis*
HELEN PRATT DAVIS, M.S., M.D., *Instructor in Medicine*
NORMAN GOODSELL THOMAS, B.S., M.D., *Clinical Associate in Medicine*
ALBERT JAY BONNER, B.S., M.D., *Clinical Instructor in Medicine*
JEAN M. JOHNSON, B.A., *Instructor in Electrocardiography*
MARIAN ESTHER STARK KIMBLE, Ph.D., *Instructor in Clinical Chemistry*
LINDLEY VINCENT SPRAGUE, M.D., *Clinical Instructor in Medicine*
JOHN HUSTON, M.A., M.D., *Supervisor of Extra-Mural Teaching*

110. PHYSICAL DIAGNOSIS. I; 3 cr. Normal physical diagnosis. Prerequisites: Anatomy 110, 121, 126, Physiology 105. Lab. fee $5.00. Dr. Carns.

111. MEDICAL DIAGNOSIS. II; 2 cr. Pathological clinical diagnosis. Prerequisites: One semester each of Pathology 101, Bacteriology 102, Medicine 110. Lab. fee $5.00. Dr. Carns.

118. PHYSICAL EXAMINATIONS. II; 2 cr. For students in physical education. Prerequisites: Anatomy 120, Physiology 115. Dr. Carns, Dr. Caldwell.

200. ADVANCED WORK AND RESEARCH. * cr.

301. Third-Year Medicine. I, 6 cr; II, 5 cr. Lectures, clinics, conferences, and ward work. Prerequisites: Medicine 102, 110, 111, Surgery 102, 103. Lab. fee $25.00. Dr. Evans, Dr. Middleton, and staff.

302. Oral Hygiene. II. Included in 301. Dr. Chase.

305. Therapeutics. I, II; 1 cr. Prerequisites: Medicine 102, 111. Given in conjunction with Department of Pharmacology. Dr. Evans, Dr. Middleton and staff.

306. Advanced Work and Research in Therapeutics. *cr. Given in conjunction with Department of Pharmacology.

401. Internal Medicine. I, II; 4½ cr. Prerequisites: Medicine 301, Surgery 301.

CLINICAL PATHOLOGY

William Davidson Stovall, B.S., M.D., *Professor of Hygiene*
Lois Almon, Ph.D., *Instructor in Clinical Pathology*
Edward A. Birge, B.A., M.D., *Instructor in Clinical Pathology*
Charles E. Black, B.S., M.D., *Instructor in Clinical Pathology*
John Kenner Stewart, B.S., M.D., *Instructor in Clinical Pathology*

102. Clinical Laboratory Diagnosis. II; 3 cr. Prerequisites: Bacteriology 102, Pathology 101, Physiological Chemistry 104. Lab. fee $10.00. Dr. Stovall and staff.

DERMATOLOGY

Otto Hottinger Foerster, M.D., *Professor of Dermatology*
Roscoe Lyle McIntosh, B.S., M.D., *Associate Professor of Dermatology*
Harry Robert Foerster, B.S., M.D., *Assistant Professor of Dermatology*

200. Advanced Work and Research. *cr. Lab. fee $5.00.

315. Dermatology. I; 1 cr. Prerequisites: Medicine 102, 111. Dr. Foerster and staff.

415. Fourth-Year Dermatology. I, II; 1 cr. Prerequisite: Medicine 315.

MEDICAL JURISPRUDENCE AND MEDICAL ETHICS

420. Medical Jurisprudence and Medical Ethics. 1 cr. Assigned reading and examination.

PEDIATRICS

John Eugene Gonce, Jr., B.A., M.D., *Professor of Pediatrics*
Horace Kent Tenney, M.D., *Associate Professor of Pediatrics*
Kenneth Bernard McDonough, B.A., M.D., *Instructor in Pediatrics*

200. Research. *cr. Lab. fee $5.00.

310. Pediatrics. I; 1 cr. Prerequisites: Medicine 102, 111. Dr. Gonce and staff.

410. Fourth-Year Pediatrics. I, II; 2½ cr. Prerequisite: Medicine 310.

NEUROPSYCHIATRY

William Frederick Lorenz, M.D., *Professor of Neuropsychiatry, Chairman*
William Jefferson Bleckwenn, B.S., M.D., *Professor of Neuropsychiatry*
Hans Heinrich Reese, M.D., *Professor of Neuropsychiatry*
Mabel Garden Masten, B.S., M.D., *Associate Professor of Neuropsychiatry*
Edward Russell Hodgson, B.S., M.D., *Instructor in Neuropsychiatry*
Franklin Otto Meister, B.S., M.D., *Instructor in Neuropsychiatry*
Marc James Musser, B.A., M.D., *Instructor in Neuropsychiatry*
Joseph Pessin, Ph.D., M.D., *Instructor in Neuropsychiatry*
Morton Kay Green, M.D., *Clinical Associate in Neuropsychiatry*
Mark Edwin Nesbit, M.D., *Clinical Associate in Neuropsychiatry*
August Sauthoff, B.S., M.D., *Clinical Associate in Neuropsychiatry*

112. Problems in Neuropsychiatry. Credit according to work done. Dr. Lorenz and staff.

200. Research. Yr; *cr. Staff. Lab. fee $5.00.

312. Third-Year Neuropsychiatry. II; 2 cr. Prerequisites: One semester of Medicine 301 and Surgery 301. Dr. Lorenz and staff.

412. Fourth-Year Neuropsychiatry. I, II; 3 cr. Prerequisite: Medicine 312.

PATHOLOGY

Charles Henry Bunting, B.S., M.D., *Professor of Pathology, Chairman*
Gorton Ritchie, B.A., M.D., *Associate Professor of Pathology*
John Carroll McCarter, B.A., M.D., *Assistant Professor of Pathology*

101. Human Pathology. Yr; 8 cr. 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 demonstration of gross morbid specimens. The course is arranged as follows: (a) General Pathology. Until the Christmas recess; I, 4 cr. Prerequisites: Anatomy 110, 126, Physiology 105. (b) Special Pathology. From the Christmas recess until the end of March; I, 2 cr; II, 2 cr. Prerequisite: Satisfactory completion of general pathology. Lab. fee I; $15.00, II, $5.00. Dr. Bunting and staff.

121. Medical History. II; 2 cr. Joint course by the Departments of Pathology and Physiology. The course will consist of 16 lectures and 8 seminars. The enrollment is limted to second-year medical students and graduate students. Drs. Bunting and Meek.

200. Advanced Pathology. I, II; * cr. Lab. fee $5.00. Dr. Bunting.

301. Clinical Pathological Conferences. Given as a part of Medicine 301. Dr. Bunting and members of medical and surgical staffs.

PHARMACOLOGY AND TOXICOLOGY

Arthur Lawrie Tatum, Ph.D., M.D., *Professor of Pharmacology, Chairman*
Maurice Harrison Seevers, Ph.D., M.D., *Associate Professor of Pharmacology*
Frank Ludwig Kozelka, Ph.D., *Assistant Professor of Toxicology*

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. The laboratory is specially fitted for research in chemotherapy.

101. Toxicology. II; 1 cr. Lectures on the general action of toxic drugs, the diagnosis and treatment of poisoning, the preparation of autopsy material for subsequent chemical analysis in medico-legal cases, and general questions of medical jurisprudence. Prerequisites: Physiology 105, Physiological Chemistry 104. Dr. Kozelka.

104. Pharmacology. II; 4 cr. Lectures, laboratory and conferences on the chemistry, the pharmacological and toxicological action, and the therapeutic uses of the chief medicinal drugs. Practice in prescription writing. Prerequisites: Physiology 105, Physiological Chemistry 104. Lab. fee $17.00. Dr. Tatum, Dr. Seevers.

120. Journal Club. Yr; 1 cr. A meeting is held weekly. Advanced students will be expected to report from time to time upon current papers dealing with pharmacology and toxicology.

200. Research. The facilities of the laboratory are available to qualified persons. Lab. fee $5.00.

222. Seminar in Physiology, Pharmacology, and Physiological Chemistry. Yr; 1 cr.

PHYSIOLOGICAL CHEMISTRY

Harold Cornelius Bradley, Ph.D. *Professor of Physiological Chemistry, Chairman*

Edgar John Witzemann, Ph.D., *Associate Professor of Physiological Chemistry*

Edgar Stillwell Gordon, B.A., M.D., *Research Associate in Physiological Chemistry*

104. Physiological Chemistry. I; 4 cr. Lectures, conferences, and laboratory work. Required for first-year medical students and open to others as an elective. Prerequsites: Chemistry 1 and 20 or 120, Physics 1, Zoology 1. Lab. fee $15.00; deposit $5.00. Dr. Bradley, Dr. Witzemann.

114. Physiological Chemistry. I: 3 cr. Lectures, conferences, and laboratory work. Required of juniors in physical education for women and open to others as an elective. Prerequisites: Chemistry 1, Physics 1, Zoology 1. Lab. fee $7.00; deposit $5.00. Dr. Baernstein.

117. Advanced Physiological Chemistry and Research. II; *cr. Lab. fee $2.50 per cr.; deposit $5.00. Dr. Bradley, Dr. Witzemann.

120. Journal Club. Yr; 1 cr. Dr. Bradley.

200. Research.

222. Seminar in Physiology, Pharmacology, and Physiological Chemistry. Yr; 1 cr.

PHYSIOLOGY

WALTER JOSEPH MEEK, Ph.D., *Professor of Physiology, Chairman*
JOHN AUGUSTINE ENGLISH EYSTER, B.S., M.D., *Professor of Physiology*
RAYMOND CLYDE HERRIN, Ph.D., *Associate Professor of Physiology*
ELIZABETH BROGDON, *Instructor in Physiology*
FRANCES ANNE HELLEBRANDT, B.S., M.D., *Associate Professor of Physiology*
FRANK MARESH, M.S., *Instructor in Physiology*
OSWALD SIDNEY ORTH, M.S., *Instructor in Physiology*
KATE STALEY, B.A., M.S., *Instructor in Physiology*
WILLIAM BARTON YOUMANS, M.A., *Instructor in Physiology*

1. ELEMENTS OF HUMAN PHYSIOLOGY. I; 4 cr. Lectures, quizzes, and demonstrations giving a general knowledge of the structure and functions of the human body. Especially adapted to teachers. Students electing this course should have had some chemistry. Lab. fee $3.00. Dr. Meek.

3. ANIMAL PHYSIOLOGY. II; 4 cr. Especially designed for students in agriculture and in physical education for men, but open to others. Lab. fee $3.00. Dr. Herrin and staff.

4. PHYSIOLOGY. I; 4 cr. Lab. fee $3.00. Open only to students in the course in nursing. Dr. Herrin.

17. SURVEY OF PHYSIOLOGY: FUNCTIONS OF THE HUMAN BODY. I; 4 cr. Elementary survey course intended for B.A., General Course students. Open to freshmen. Chemistry a desirable prerequisite. Lab. fee $3.00. Dr. Meek.

105. MEDICAL PHYSIOLOGY. I; 2 cr; II, 7 cr. Lectures, recitations, demonstrations, and laboratory. Required of first-year medical students and open to others as an elective. Prerequisites: Anatomy 110, 121 (comparative or human anatomy), 126; Physiological Chemistry 104. Lab. fee $17.00. Dr. Meek, Dr. Eyster.

115. PHYSIOLOGY. I; 5 cr. Lectures, recitations, demonstrations, and laboratory. Required of juniors in physical education for women and open to others as an elective. Prerequisites: Comparative anatomy, physiological chemistry. Lab. fee $13.00. Dr. Hellebrandt.

116. PHYSIOLOGY OF EXERCISE. II; 3 cr. Prerequisite: Physiology 115. Lab. fee $6.00. Dr. Hellebrandt.

117. PROBLEMS IN APPLIED PHYSIOLOGY. II; 2 cr. Prerequisites: Physiology 115, 116. Lab. fee $5.00 Dr. Hellebrandt.

120. JOURNAL CLUB. Yr; 1 cr. Reports of recent physiological and biochemical literature. Dr. Meek.

121. MEDICAL HISTORY. II; 2 cr. Joint courses by the Departments of Pathology and Physiology. The course will consist of 16 lectures and 8 seminars. The enrollment is limited to second-year medical students and graduate students. Drs. Meek and Bunting.

122. BIO-MATHEMATICS. II; 2 cr. Application of mathematics to biology. For sophomore medics or graduate students who have had elementary training in mathematics. Dr. Eyster.

200. Advanced Physiology and Research. Yr; * cr. Lab. fee $5.00. Dr. Eyster, Dr. Meek, Dr. Hellebrandt, Dr. Herrin.

222. Seminar in Physiology, Pharmacology, and Physiological Chemistry. Yr; 1 cr.

RADIOLOGY AND PHYSICAL THERAPY

Ernst Albert Pohle, M.D., Ph.D., *Professor of Radiology, Chairman*
James Claude Elsom, M.D., *Professor of Physical Education, Professor of Physical Therapy, Emeritus*
Martha Ellen Lewis, B.A., *Instructor in Physical Therapy*
Ivan George Ellis, M.D., *Lecturer in Radiology*

200. Graduate Work and Research. The facilities of the laboratory are available for carrying out investigations in the field of radiology and physical therapy. Credit toward an M.S. or Ph.D. degree may be obtained by enrolling in the Graduate School and meeting its requirements. Dr. Pohle.

222. Seminar in Radiology and Physical Therapy. Yr; 1 cr. Dr. Pohle and staff.

316. Physical Therapy. II; 1 cr. In this course the fundamentals of mechano-, light-, electro-, and hydro-therapy and their clinical indications are considered. Prerequisites: Medicine 301, I; Surgery 301, I. Dr. Boynton.

320. Radiography and Radiotherapy. II; 1 cr. Lectures and demonstrations to third-year students. Prerequisites: Medicine 301, I; Surgery 301, I. Drs. Pohle, Jacobs.

405. Applied Radiology. I, II; 1 cr. Interpretation of roentgenograms, and clinic in X-ray and radium therapy. Prerequisite: Surgery 320. Drs. Pohle, Ellis, Jacobs.

416. Applied Physical Therapy. I, II; 1 cr. Prerequisite: Surgery 316. Dr. Boynton.

SURGICAL DIVISION

GENERAL SURGERY

Erwin Rudolph Schmidt, B.A., M.D., *Professor of Surgery, Chairman*
Joseph Wasson Gale, M.A., M.D., *Associate Professor of Surgery*
Kenneth Elery Lemmer, B.S., M.D., *Assistant Professor of Surgery*

102. Surgical Clinics. II; 1 cr. Prerequisites: Anatomy 121, Pathology 101, I; Physiology 105.

103. Elements of Surgery. II; 1 cr. Prerequisites: Anatomy 121, Pathology 101, I; Bacteriology 102, Physiology 105. Dr. Schmidt.

200. Advanced Work and Research. Yr; *cr.

301. Third-Year Surgery. I, 6 cr; II, 4 cr. Lectures, conferences, ward work, clinics, surgical pathological conference, experimental surgery. Prerequi-

sites: Medicine 110, 111, Surgery 102, 103. Lab. fee $25.00. Dr. Schmidt, Dr. Gale, Dr. Waters, and staff.

401. Fourth-Year Surgery. I, II; 3 cr. Prerequisites: Medicine 301, Surgery 301.

ANESTHESIA

Ralph Milton Waters, B.A., M.D., *Professor of Anesthesia*
Ivan Benjamin Taylor, M.D., *Instructor in Anesthesia*

200. Advanced Work and Research. Yr; *cr.

301. In Conjunction with Third-Year Surgery. I, Anesthesia and resuscitation in animals. Dr. Taylor. II, Principles of anesthesia as applied to man. Dr. Waters.

401. In Conjunction with Fourth-Year Surgery. Practical experience in pre-operative, operative and post-operative work.

OPHTHALMOLOGY

Frederick Allison Davis, M.D., *Professor of Ophthalmology*
Ezra Eugene Neff, B.A., M.D., *Associate Professor of Ophthalmology*
Peter Alexander Duehr, M.D., *Instructor in Ophthalmology*
Fred Kundert, M.D., *Clinical Associate in Ophthalmology*

200. Advanced Work and Research. Yr; *cr. Dr. Davis and staff.

310. Third-Year Ophthalmology. I; 1 cr. Prerequisites: Medicine 110, 111, Surgery 102, 103. Lab. fee $2.50. Dr. Davis and staff.

410. Fourth-Year Ophthalmology. I, II; 1 cr. Prerequisites: Surgery 310, 311.

RHINOLOGY AND OTOLARYNGOLOGY

Wellwood Mack Nesbit, M.D., *Professor of Otolaryngology*
Mark Edwin Nesbit, M.D., *Instructor in Otolaryngology*

200. Advanced Work and Research. Yr; *cr. Dr. Nesbit and staff.

311. Third-Year Rhinology and Otolaryngology. I; 1 cr. Prerequisites: Medicine 110, 111, Surgery 102, 103. Lab. fee $2.50. Dr. Nesbit.

411. Fourth-Year Rhinology and Otolaryngology. I, II; 2 cr. Prerequisites: Surgery 310, 311.

ORTHOPEDIC SURGERY

Robert Emmett Burns B.S., M.D., *Professor of Orthopedic Surgery*
Herman Charles Schumm, B.S., M.D., F.A.C.S., *Associate Professor of Orthopedic Surgery*
Herman Wenzel Wirka, B.A., M.D., *Assistant Professor of Orthopedic Surgery*

200. Advanced Work and Research. Yr; *cr.

315. THIRD-YEAR ORTHOPEDICS. II; 1 cr. Prerequisites: Medicine 301, I; Surgery 301, I.

415. FOURTH-YEAR ORTHOPEDICS. I, II; 1 cr. Prerequisite: Orthopedics 315.

ORAL AND PLASTIC SURGERY

GEORGE VAN INGEN BROWN, M.D., D.D.S., F.A.C.S., *Emeritus Professor of Plastic Surgery*
VOLNEY BUTMAN HYSLOP, M.D., *Professor of Plastic Surgery*
EDWIN FRANK WESTOVER, D.D.S., *Instructor in Dental Surgery*
JAMES EDWARD DOLLARD, B.A., M.D., *Instructor in Plastic Surgery*

200. ADVANCED WORK AND RESEARCH. Yr; *cr.

314. PLASTIC SURGERY. II; 1 cr. Prerequisites: Medicine 301, I; Surgery 301, I.

UROLOGY

IRA ROSCOE SISK, Phar.D., M.D., *Professor of Urology*
JOHN BREWSTER WEAR, B.A., M.D., *Associate Professor of Urology*

200. ADVANCED WORK AND RESEARCH. Yr; *cr.

325. THIRD-YEAR UROLOGY. II; 1 cr. Prerequisites: Medicine 301, I; Surgery 301, I.

425. FOURTH-YEAR UROLOGY. I, II; 2 cr. Prerequisite: Urol. 325.

OBSTETRICS AND GYNECOLOGY

JOHN WARTON HARRIS, M.A., M.D., *Professor of Obstetrics and Gynecology, Chairman*
RALPH EMERSON CAMPBELL, B.S., M.D., *Associate Professor of Obstetrics and Gynecology*
CARL SAMUEL HARPER, B.S., M.D., *Assistant Clinical Professor of Obstetrics and Gynecology*
MADELINE JOSEPHINE THORNTON, B.A., M.D., *Assistant Professor of Obstetrics and Gynecology*

200. ADVANCED WORK AND RESEARCH. Yr; *cr. Lab. fee $5.00.

330. THIRD-YEAR OBSTETRICS AND GYNECOLOGY. Yr; 3 cr. Prerequisites: Medicine 301, I; Surgery 301, I. Lab. fee $5.00. Dr. Harris and staff.

406. FOURTH-YEAR OBSTETRICS AND GYNECOLOGY. I; 2 cr. Prerequisite: Ob. & Gyn. 330. This course is supplemented by four weeks of clinical instruction in Chicago through the courtesy of the Directors of the Chicago Lying-In Hospital, The Chicago Maternity Center, Dr. J. B. DeLee, and Dr. F. L. Adair.

MEDICAL TECHNOLOGY

WILLIAM D. STOVALL, M.D., *Professor of Hygiene, Chairman*
LOIS ALMON, Ph.D., *Instructor in Medical Technology*
JOHN KENNER STEWART, M.D., *Instructor in Clinical Medicine*

The courses in this department are especially designed for the major in the course in Medical Technology and are not open to election by students in other courses. Laboratory fees are $25 per semester.

101. URINE ANALYSIS. I; 5 cr. Chemical and microscopic examination of urine. 240 hours. 8-12 MTWTFS for 10 weeks. Dr. Stewart.

102. NORMAL HEMATOLOGY. I; 4 cr. Hemoglobin determinations, cell counts—total and differential; color, and volume index determination; platelet volume and count; bleeding and coagulation time; erythrocyte fragility; sedimentation rate; blood grouping and cross matching. 201 hours. 8-12 MTWTFS for 4 weeks; 1:30-5 MTWTF for 6 weeks. Dr. Almon.

103. SPECIAL HEMATOLOGY. I; 3 cr. Determinations outlined under "Normal Hematology" performed on abnormal blood. 177 hours. 8-12 MTWTFS for 3 weeks; 1:30-5 MTWTF for 6 weeks. Dr. Stovall.

104. APPLIED BACTERIOLOGY. I; 4 cr. Examination of smears, fluids, excreta, and pus for pathological organisms. 212 hours. 8-12 MTWTFS for 3 weeks; 1:30-5 MTWTF for 8 weeks. Dr. Almon.

111. APPLIED SEROLOGY. II; 4 cr. Identification of organisms by serological methods, Wassermann and Kahn tests. Tests for allergic conditions. 212 hours. 8-12 MTWTFS for 3 weeks; 1:30-5 MTWTF for 4 weeks. Dr. Almon.

112. APPLIED PARASITOLOGY. II; 1 cr. 60 hours. 8-12 MTWTFS for 2½ weeks. Dr. Stewart.

113. CLINICAL CHEMISTRY. II; 5 cr. Blood chemistry; chemistry of gastric and spinal fluids; basal metabolism. 318 hours. 7:30-11:30 MTWTFS for 3 weeks; 1:30-5 MTWTF for 13 weeks. Dr. Almon.

114. MICROTECHNIQUE. II; 3 cr. 144 hours. 8-12 MTWTFS for 6 weeks. Dr. Stovall.

115. ELECTROCARDIOGRAPHY. II; 2 cr. 156 hours. 8-12 MTWTFS for 6½ weeks. Dr. Stewart.

SCHOOL OF NURSING

CHRISTINA C. MURRAY, DIRECTOR

ORGANIZATION AND AIMS

The School of Nursing of the University of Wisconsin is organized in association with the Medical School of the University and with the State of Wisconsin General Hospital. The coordinating committee of the school is composed of the Dean of the Medical School, the Superintendent of the Hospital, and the Director of the School, who has charge of the immediate administration. There is close affiliation between the school and other departments of the University. In the field of public health nursing the school has the cooperation of the Bureau of Public Health Nursing of the State Board of Health.

The aims of the school are:

1. To give adequate training in the sympathetic care of the sick.
2. To promote academic education as an aid to professional experience.
3. To stimulate advanced training and research in special fields of work within the realm of nursing.

ADMISSION REQUIREMENTS

For matriculation in the School of Nursing a student must furnish evidence that she has satisfied the general requirements for admission to the University, as stated under Part III, Admission, page 34.

Students desiring to enter the School of Nursing are requested to communicate with the Registrar of the University and, for more specific details, with the Director of the School of Nursing, University of Wisconsin.

The physical and clinical facilities exact a sharp limitation of acceptances.

EXPENSE

During the period of pre-professional instruction, the minimum for which is one year, the student is subject to the same conditions as other students in the University and must provide for her room, board, and incidental expenses and pay the regular university fees. Board and room cost from $8 per week upwards. During the period of resident professional instruction no fees are charged and room, board, and laundry are furnished the students.

A detailed discussion of student expense, including university charges, loan funds and scholarships, self-support, etc., may be found on page 13.

FIVE-YEAR COMBINED COURSES

Two courses are offered of combined academic and resident professional instruction leading to the degree of Bachelor of Science and Certificate of Graduate Nurse in five years.

The College of Letters and Science grants the degree of Bachelor of Science (Hygiene) to students who successfully complete six semesters of work, as outlined below, in the College of Letters and Science, and 27 months of work in the School of Nursing.

The College of Agriculture grants the degree of Bachelor of Science (Home Economics) to students who successfully complete six semesters of work, as outlined below, in Courses in Home Economics, and 27 months of work in the School of Nursing.

COMBINED COURSE, COLLEGE OF LETTERS AND SCIENCE

This course leads to the degree of Bachelor of Science (Hygiene). The following specific requirements must be satisfactorily met:

ENGLISH. 10 credits as follows: 6 credits in composition, 3 credits per semester for two semesters, to be taken in the first year of residence; 4 credits in literature, to be taken normally in the sophomore year. Students securing a grade of A in the first semester of composition may, if they so desire, omit the second semester.

FOREIGN LANGUAGE. Two years of either French or German in college if students do not meet the foreign-language requirement for the B.A. degree. (See page 67.)

HISTORY. 6 credits in a continuous year course; or mathematics, 8 credits.

SCIENCE. Chemistry 1, 10 credits; Physiology 4, 4 credits; Bacteriology 4, 3 credits; Nursing 1, 3 credits; Dietetics 1, 2 credits.

ECONOMICS, SOCIOLOGY, AND PSYCHOLOGY. 16 credits, including Economics 1a, Sociology 1, 2, and 141, and Psychology 1; or 16 credits of science in addition to Chemistry 1, including biology, 10 credits, and organic chemistry, 4 credits.

ELECTIVES. A sufficient number of electives must be taken to bring the total amount of work in the College of Letters and Science up to 94 credits and 94 grade-points, including major study and thesis.

MAJOR STUDY. By the beginning of the junior year every candidate should be well started in her major study which must be chosen from the majors offered in the College of Letters and Science including majors in the medical sciences. This major may include a thesis, to be prepared during the final years of the combined course.

CREDITS. A total of 129 credits and 129 grade-points, including 94 required by the College of Letters and Science and 35 earned during the required 27 months of resident professional instruction.

SEQUENCE OF SUBJECTS

FRESHMAN YEAR

First Semester	Credits	Second Semester	Credits
Engl. 1a—Freshman composition	3	Engl. 1b—Freshman composition	3
Chem. 1a—General chemistry	5	Chem. 1b—General chemistry	5
History or mathematics	3-4	History or mathematics	3-4
French or German	3-4	French or German	3-4
Physical education	0	Physical education	0
	14-16		14-16

SOPHOMORE YEAR

Engl. 33a—English literature	2	Engl. 33b—English literature	2
French or German	3-4	French or German	3-4
Optional subjects	8-11	Optional subjects	8-11
Biology 1—5 cr.		Biology 1—5 cr.	
Chemistry 20, 21, or 120, 121—3-4 cr.		Chemistry 120, 121—3-5 cr.	
Economics 1a—4 cr.		Economics 1a—4 cr.	
Psychology 1—3 cr.		Sociology 2—3 cr.	
Sociology 1—3 cr.		Psychology 1—3 cr.	
	14-16		14-16

JUNIOR YEAR

Physiology 4—Anatomy	4	Bacteriology 4	3
Optional subjects	3-6	Dietetics 1	2
Sociology 141—3 cr.		Nursing 1	3
Free option—3 cr.		Electives	8
Electives	5-8		
	15		16

COMBINED COURSE, DEPARTMENT OF HOME ECONOMICS

This course leads to the degree of Bachelor of Science (Home Economics). The following specific requirements must be satisfactorily met: (1) Completion of the required work of the freshman and sophomore years of the Courses in Home Economics, as outlined on page 309. (2) Completion of the following additional courses: Home Economics 7, 6, 22, 133; English 33b, Anatomy 120 or Physiology 4; Nursing 1, and the equivalent of Dietetics 1. Thesis, 4 credits. (3) Electives sufficient to bring the total credits of work required by the Department of Home Economics up to 94, including thesis. (4) Twenty-seven months of resident professional instruction in nursing. (5) A total of 129 credits and 129 grade-points, including 94 required by the Department of Home Economics and 35 earned during the period of resident professional instruction.

RESIDENT PROFESSIONAL INSTRUCTION

The resident professional instruction consists of 27 months in residence in the Nurses' Dormitory. During this period the student has instruction in Medicine, Surgery, and Principles of Nursing, Ward Practice in wards and out-patient departments of the Hospital, and practical experience in public health nursing. Each student is expected to take at least four weeks' vacation each year in addition to the 27 months. The semester work is arranged in the following sequence:

First Semester	Credits	Second Semester	Credits
Therapeutics 1	3	Medicine & Surgery 2	4
Medicine & Surgery 1	4	Medicine & Surgery 4	2
Nursing 2	2	Nursing 3	2
Ward Practice 30 hours per week		Ward Practice 30 hours per week	
	9		8

Third Semester		Fourth Semester	
Medicine & Surgery 3	3	Medicine & Surgery 7	2
Medicine & Surgery 5	2	Nursing 5	4
Education 47	3	Nursing 4	2
Medicine & Surgery 6	2	Ward Practice 36 hours per week	
Ward Practice 36 hours per week			
	10		8

GRADUATE NURSE COURSE

COURSE OF STUDY LEADING TO THE TITLE OF GRADUATE NURSE

Students may register in the resident professional instruction after the completion of one to two years of academic work. This work must be chosen from the following subjects: English, 6 to 10 credits; History, 3 to 6 credits, or Mathematics, 4 to 8 credits; Chemistry, 10 credits; Sociology, 3 to 6 credits; Psychology, 3 credits; Physiology 4, 4 credits; Bacteriology 4, 3 credits; Nursing 1, 3 credits; and Dietetics 1, 2 credits.

Students who are partly or wholly self supporting should carry reduced programs during this pre-hospital period.

SUGGESTED SEQUENCE OF SUBJECTS

ONE YEAR

First Semester	Credits	Second Semester	Credits
English 1a	3	English 1b	3
Chemistry 1a	5	Chemistry 1b	5
Physiology 4	4	Bacteriology 4	3
History or mathematics	3 or 4	Nursing 1	3
Physical education	0	Dietetics 1	2
		Physical education	0
	15-16		16

In addition to the subjects outlined above, the resident professional instruction will include Psychology 1 and Sociology 2.

TWO YEARS

English 1a	3	English 1b	3
Chemistry 1a	5	Chemistry 1b	5
History or Mathematics	3-4	History or Mathematics	3-4
French or German	3-4	French or German	3-4
	14-16		14-16
English 33a	2	English 33b	2
Sociology 1 or 2	3	Bacteriology 4	3
French or German	3	Nursing 1	3
Psychology 1	3	Dietetics 1	2
Physiology 4	4	Sociology 1 or 2	3
		French or German	3
	15		16

STATE REGISTRATION

Upon the successful completion of the Graduate Nurse Course, graduates will be eligible for admission to the examination for registration in the states which have not enacted laws requiring three years' ward practice in a hospital. Graduates of the five-year combined course may register in all states where the school is registered.

DEPARTMENTS OF INSTRUCTION

For a description of the courses in botany, zoology, chemistry, physics, psychology, history, economics, sociology, English, and the foreign languages, see departmental announcements in the College of Letters and Science. For home economics see departmental announcements of the College of Agriculture. For the medical sciences, anatomy, physiology, bacteriology, hygiene, pharmacology and toxicology, see departmental announcements of the Medical School.

Abbreviations used in the announcement of courses:

Yr—a continuous course extending through two semesters
I—course given during the first semester
II—course given during the second semester
I, II—semester course given each semester
cr—number of credit hours per semester

DIETETICS

ANTOINETTE DOOLAN, B.S., R.N., *Assistant Professor of Dietetics*
SADIE M. STOLEN, B.S., *Assistant Professor of Dietetics*

1. SELECTION, PREPARATION, AND SERVING OF FOOD FOR THE SICK. II; 2 cr.

MEDICINE AND SURGERY

ROBERT EMMETT BURNS, B.S., M.D., *Professor of Orthopedic Surgery*
JOHN EUGENE GONCE, JR., B.A., M.D., *Professor of Pediatrics*
JOHN WARTON HARRIS, M.D., *Professor of Obstetrics and Gynecology*
VOLNEY BUTMAN HYSLOP, M.D., *Professor of Oral and Plastic Surgery*
WELLWOOD MACK NESBIT, M.D., *Professor of Otolaryngology*
ERNEST ALBERT POHLE, M.D., *Professor of Radiology*
WILLIAM SHAINLINE MIDDLETON, M.D., *Professor of Medicine*
WILLIAM DAVISON STOVALL, M.D., *Professor of Hygiene*
RALPH MILTON WATERS, M.D., *Professor of Anesthesia*
RALPH EMERSON CAMPBELL, B.S., M.D., *Associate Professor of Obstetrics and Gynecology*
JOHN WASSON GALE, M.A., M.D., *Associate Professor of Surgery*
EZRA EUGENE NEFF, B.A., M.D., *Associate Professor of Ophthalmology*
ROSCOE LYLE MCINTOSH, B.S., M.D., *Associate Professor of Dermatology*
MABEL GARDEN MASTEN, B.S., M.D., *Associate Professor of Neuropsychiatry*
JOHN BREWSTER WEAR, B.A., M.D., *Associate Professor of Urology*
FREDERICK MIDELFART, B.A., M.D., *Assistant Professor of Medicine*
MADELINE JOSEPHINE THORNTON, B.A., M.D., *Assistant Professor of Obstetrics and Gynecology*
ANNETTE CLARKE WASHBURNE, B.S., M.D., *Assistant Professor of Neuropsychiatry*

1. RECOGNITION AND TREATMENT OF GENERAL MEDICAL AND SURGICAL DISEASES. I; 4 cr. Physical Therapy.
2. HEALTH, DISEASE, AND THERAPY IN INFANCY AND CHILDHOOD. II; 4 cr. Includes Pediatrics, Orthopedics, and Operating Room Technique.
3. NERVOUS AND MENTAL HEALTH, DISEASE, AND THERAPY. I; 3 cr. This course includes the principles of mental hygiene.

4. Health, Disease, and Therapy of the Eye, Ear, Nose, Mouth, Throat, Skin. II; 2 cr.

5. Special Therapeutic Technique. I; 2 cr. Communicable Diseases, Anesthesia.

6. Obstetrics and Gynecology. I; 2 cr.

7. Medicine. II; 2 cr. Diet in Disease.

NURSING

Christina Cameron Murray, B.A., R.N., *Professor of Nursing*
Lila Belle Fletcher, R.N., *Associate Professor of Nursing*
Helen Lathrop Bunge, M.A., R.N., *Assistant Professor of Nursing*
Grace Kellock Seborg, M.S., R.N., *Assistant Professor of Nursing*
Agnes Mattson Albrecht, R.N., *Instructor in Nursing*
Synova Eleanor Asleson, R.N., *Assistant Instructor in Nursing*
Helen Bleecker Bakken, R.N., *Instructor in Nursing*
Gladys Kathryn Carey, R.N., *Instructor in Nursing*
Eva Bewick Clifford, R.N., *Instructor in Nursing*
Margaret Clara Crump, B.S., R.N., *Instructor in Nursing*
Josephine Mary Draper, B.S., R.N., *Instructor in Nursing*
Margaret Ruth Emanuel, B.S., R.N., *Instructor in Nursing*
Evelyn Louise Finkh, B.S., R.N. *Instructor in Nursing*
Rosena Elizabeth Haemmerlie, R.N., *Instructor in Nursing*
Margaret Hanstein, R.N., *Instructor in Nursing*
Lucille Ada Heimann, B.S., R.N., *Instructor in Nursing*
Dorothy Carol Hein, R.N., *Assistant Instructor in Nursing*
Marjorie Capell Paquin, B.S., R.N., *Instructor in Nursing*
Edith Anna Stehle, B.S., R.N., *Instructor in Nursing*
Thresa S. Stolen, R.N., *Assistant Instructor in Nursing*
Shirley Rachel Watson, B.S., R.N., *Instructor in Nursing*
Erna Emma Ziegel, B.S., R.N., *Instructor in Nursing*

1. Introduction to the Study of Nursing. II; 3 cr.

2. Nursing Arts in Relation to Medicine and Surgery. I; 2 cr. Continuance of Nursing 1 which is prerequisite.

3. Nursing Arts in Relation to Medicine and Surgery 2 and 4. II; 2 cr. Prerequisites: Nursing 1 and 2.

4. Survey of Nursing Field and Public Health Field. II; 2 cr. Prerequisites: Nursing 1, 2, 3.

5. Advanced Nursing Arts. II; 4 cr. Prerequisites: Nursing 1, 2, 3.

THERAPEUTICS

Arthur Lawrie Tatum, Ph.D., M.D., *Professor of Pharmacology*
Ernest Gottfried Kuenzi, B.S., *Pharmacist*

1. Materia Medica. I; 3 cr. The recognition, use, and danger of drugs used in medicine.

SCHOOL OF EDUCATION

C. J. ANDERSON, DEAN

In April, 1930, the Regents of the University approved the action of the University Faculty establishing a School of Education of college rank, and gave to it jurisdiction over the undergraduate preparation of teachers. The establishment of this coordinate school is the fourth step taken by the University of Wisconsin in the development of the training of teachers. Prior to 1908, the Department of Education offered certain courses for those preparing to teach. In 1908 the Course for the Training of Teachers was established. This was superseded in June, 1919, by a School of Education administered within the College of Letters and Science, and by the present School of Education.

The faculty of the School of Education is made up of the faculties of the Departments of Education, Educational Methods, Art Education, and Physical Education for Men and for Women, those faculty members offering courses in educational methods, and those members of the faculties of the departments in the College of Letters and Science and of Agriculture who offer courses of junior and senior grade in the following teaching majors and minors: agriculture, American institutions, botany, chemistry, commerce, comparative literature, economics, English, French, geography, German, Hispanic studies, history, home economics, Italian, journalism, Latin, library science, mathematics, music, natural science, physics, physiology, Polish, political science, Spanish, speech, speech correction, sociology, zoology.

The School of Education provides professional preparation for teachers of academic high-school and junior high-school subjects of art, agriculture, home economics, and physical education; also play-ground and recreation supervisors, high-school librarians, principals, superintendents, and supervisors.

The preparation noted above rests upon a basis of a sound general education and includes: (1) a teaching major and minor in the academic or special fields; (2) professional training including courses dealing with the principles, psychology, and the practice of teaching, closely correlated with actual participation in the Wisconsin High School. Graduate courses in the various fields of education, including opportunity for research, are offered for those who recognize the desirability of study beyond the four years of college work, and who are preparing to become teachers in public schools, teachers' colleges, colleges, and universities, as well as supervisors and administrators.

ADMISSION AND REGISTRATION

1. Students electing a major in Art Education or in Physical Education will register in the School of Education at the beginning of the freshman year.

2. Freshmen and sophomores in the College of Letters and Science who expect to transfer to the School of Education and elect a teaching major in an academic field, are required to comply with the same general regulations outlined in the bulletin of the College of Letters and Science, pages 51-72, inclusive. Students electing a teaching major in an academic field are eligible for transfer to the School of Education when they have satisfactorily completed the regular requirements of the first two years of one of the General Courses in the College of Letters and Science. However, no student will be accepted into the School of Education unless his scho-

lastic record is sufficiently high to indicate the probability of success in some teaching field. Applicants for transfer are also required to present evidence of proficiency in speech in the form either (a) a rating by the Speech Examination Committee of the School of Education, or (b) a grade in Speech 1. (Fundamentals of speech). Students are advised to adopt the requirements of the first two years of one of the General Courses to the requirements for graduation from the School of Education, in order to obviate the necessity of spending more than four years in earning the B.S. (Education) degree. Any one of the four special sequences listed, on pages 392, 393, will serve to accomplish this purpose; numbers I and III fulfill the Ph.B. requirements and numbers II and IV the B.A. requirements. Before transfer to the School of Education can be approved, substantial progress toward the completion of the general requirements and the selected pre-education sequence must be made.

3. Students in special courses (College of Letters and Science) having a complete two-year or four-year curriculum, such as the Course in Chemistry, the Course in Humanities, and the Schools of Commerce, Journalism, and Music, will retain their classification in the College of Letters and Science, but must also register in the School of Education in order to receive the University Teachers' Certificate.

4. Students electing a teaching major in agriculture or in home economics must register concurrently in the College of Agriculture and in the School of Education at the beginning of the junior year.

DEGREES

The School of Education grants, upon the successful completion of the various courses, the following degrees: Bachelor of Science (Education), Bachelor of Science (Art Education), Bachelor of Science (Physical Education), and, jointly with the College of Agriculture, Bachelor of Science (Agriculture and Education) and Bachelor of Science (Home Economics and Education).

Only students qualifying for degrees in the School of Education may receive the University Teachers' Certificate and the recommendation of the School of Education, with the exception of those in the special courses noted in 3 above.

SUPERVISORY SERVICE BUREAU

A supervisory service bureau has been established for the purpose of assisting graduates of the University of Wisconsin who are teaching in the State to make the transition from university work to classroom teaching. The functions of the bureau are: (1) to provide information dealing with the problems of the first two years of teaching; (2) to visit, on call, teachers who have been graduated from the University of Wisconsin and who are within their first two years of service; (3) to issue bulletins dealing with the problems of teaching; and (4) to study continuously the training of teachers in service, the difficulties of beginning teachers, their improvability, means of improvement, etc.

BUREAU OF EDUCATIONAL RESEARCH

A bureau of educational research has been established for the purpose of coordinating and facilitating research in education with particular reference to the public schools of the State. The facilities of the bureau are available for

use by graduate students majoring in education and in allied departments and by superintendents, principals, and teachers throughout the State. Bulletins and studies, reporting the results of investigations, are issued from time to time. The work of the bureau is in charge of a committee consisting of members of the faculty of the Department of Education.

WISCONSIN HIGH SCHOOL

The Wisconsin High School, a six-year secondary school, opened in September, 1911, is maintained by the University as an integral part of the School of Education. The primary purposes of this school are (a) the exemplification of sound educational theory and organization, with special reference to secondary education, and (b) the provision of appropriate facilities for observation and directed teaching. The details of organization, program of studies, etc., will be found in the bulletin of the Wisconsin High School.

REQUIREMENTS FOR GRADUATION

Graduation from the School of Education and recommendation for the University Teachers' Certificate in academic subjects are based upon the following conditions and requirements:

I. A total of 124 credits and 124 grade-points.

II. The satisfactory fulfillment of the requirements of preparation for teaching one of the following:
(a) a major subject and one minor subject; or
(b) a major subject and two minor subjects.

To fulfill the requirements of preparation for teaching the selected major, a student must present credits in amount and kind as prescribed for a teaching major by the department of such major subject. This departmental prescription must in all cases include at least twenty credits, and, in addition, credit for the departmental teachers' course. (See Academic teaching majors and minors, pages 394-406.) As soon as it is practical the completion of a major shall be conditioned upon the passing of a comprehensive examination on the work of such a major.

To fulfill the requirements of preparation for the teaching of the selected minor subject or subjects, a student must present credits in amount and kind as prescribed by the department of such minor subjects. This departmental prescription must contain fifteen credits, exclusive of the departmental teachers' course. (See Academic teaching majors and minors, pages 394-406.)

III. The fulfilling of the course requirements of one of the four sequences listed below:

SEQUENCE I

A. No foreign language required.

B. Required: English composition, 10 cr. (English 1 and 2); history 10 cr.†; social sciences, 6 cr‡; mathematics or philosophy, 10 cr.**; natural science, 20 cr. in regular year courses.

SEQUENCE II

A. Required: Intermediate knowledge of one language.

B. Required: English literature, 4-6 cr.; English composition, 6 cr.; history, 6 cr.†; social sciences, 6 cr.‡; mathematics, 8 cr. or philosophy, 6 cr.**; natural science, 10 cr.* in elementary survey courses or in regular year courses or both.

SEQUENCE III

A. Required: Intermediate knowledge of one language.

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

SEQUENCE IV

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

B. Required: English composition, 6 cr.; English literature, 4-6 cr.; two of the following: (a) history, 6 cr.† and social sciences, 6 cr.‡; (b) mathematics, 8 cr.; (c) natural sciences. 10 cr* in elementary survey courses or in regular year courses or both.

IV. Applicants for registration in the School of Education shall present evidence concerning their speech proficiency in the form of either (a) a rating by the Speech Examination Committee of the School of Education, or (b) a grade in Speech 1.

V. The recommendation of the departments of the major and minor subjects, or the responsible authorities of the special courses, as to fitness for teaching.

VI. The presentation of a certificate of physical health and fitness from the University Medical Examiner.

VII. The completion of one group of the following professional requirements:

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

**Philosophy 21 (Introduction to Philosophy), 3 cr.; and Philosophy 11 (Elementary Logic), 3 cr., are required. Mathematics 7 may not be counted in satisfaction of this requirement.

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

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

		Credits
Group A:	Educ. 75—Psychology and practice of teaching (junior year)	5
	A course in the teaching of the major subject (senior year)	5
	Educ. 31—Principles of secondary education (senior year)	3
	*Electives in the Department of Education	5
		18

Group B: Education 1-4, inclusive, plus a two- or three-credit elective* in the Department of Education.

For information concerning the graduation requirements in the four-year courses in Art Education and Physical Education see pages 407-419.

The requirements for graduation in Agriculture and Education and Home Economics and Education are given on pages 419-421.

SPECIAL STATUTORY REQUIREMENTS

For teachers of science, the social studies, and agriculture.

Chapter 445—Laws of 1935, State of Wisconsin, reads as follows: "In granting certificates for the teaching of the courses in science and the social studies, adequate instruction in the conservation of natural resources shall be required." See *Geography 128,* Conservation of Natural Resources (first or second semester), Mr. Whitaker, or *Economics 117,* Outlines of land Economics (first semester), Mr. Wehrwein.

Chapter 397—Laws of 1935, State of Wisconsin, reads as follows: "In granting certificates for the teaching of courses in economics, the social studies, and agriculture, adequate instruction in cooperative marketing and consumers' cooperatives shall be required." See *Agricultural Economics 127 (second semester),* Cooperative Marketing, Mr. Bakken; or *Economics 173 (second semester),* Economics of Consumption, Mr. Earley.

ACADEMIC TEACHING MAJORS AND MINORS

Only such departments and courses of instruction are here indicated as are immediately related to the professional work of the School of Education.

BOTANY

EDWARD MARTINUS GILBERT, *Ph.D.,* Professor of Botany and Plant Pathology, *Chairman*

Students preparing to teach botany, who elect the subject either as a major or a minor, are advised to select courses which will include work in structural (morphological), physiological, and taxonomic or field work.

MAJOR. A minimum of 30 credits from the following courses: Zoology 1; Botany 1, 2, 103, 104, 107, 108, 110, 112, 113, 117, 129, 130, 131, 146, 153, 154, 156, 160, 162, 163, 164. (Please note also statutory requirement for cer-

*May include a course in the teaching of the minor subject, for two credits.

tification, described on page 394). A student who majors in the department and attains a grade-point average of 2.0 or above may be permitted to undertake an independent research problem and write a thesis (Botany 100) during his or her senior year. Such a student should confer with his adviser or with the chairman of the department in regard to the feasibility of electing Botany 100.

MINOR. A minimum of 15 credits from the following courses: Botany 1, 2, 103, 104, 107, 108, 110, 112, 113, 117, 129, 130, 131, 146, 153, 154 or 156, 160, 164. Attention is called to courses 1 and 2, which together constitute a year's work, and which are especially adapted to the needs of those taking a teachers' minor in botany.

Educational Methods 71. The Teaching of Biology. II; 2 or 5 cr. Miss Weber.

CHEMISTRY

JOSEPH HOWARD MATHEWS, *Ph.D.*, Professor of Chemistry, *Chairman*

MAJOR. 30-32 credits, including 8-10 credits in general chemistry and qualitative analysis (1), 8 credits in quantitative analysis (11), 4 credits in organic chemistry-lectures (120), 3 credits in organic chemistry-laboratory (121), 4 credits in physical chemistry-lectures (130), and 3 credits in physical chemistry-laboratory (131). (Please note also statutory requirements for certification described on page 394.)

MINOR. A minimum of fifteen credits.

Educational Methods 72. The Teaching of Chemistry. II; 2 or 5 cr. Prerequisites: Chemistry 1; first semester of Chemistry 120, or credit or enrollment for five credits in Chemistry 11. Mr. Walton.

COMMERCE

FAYETTE HERBERT ELWELL, *B.A., C.P.A.*, Professor of Accounting, *Director*

The School of Commerce affords certain facilities for those students who wish to prepare themselves to teach commercial subjects in secondary schools. Such students are advised to consult with the Director of the School of Commerce in the arrangement of elective work.

Educational Methods 75. The Teaching of Bookkeeping. II; 2 or 5 cr. Prerequisites: Senior standing and Commerce 9. Practice teaching in bookkeeping is not offered in the Wisconsin High School; however, those who elect this course are required to do participation-teaching in another subject. Miss Hensey.

COMPARATIVE LITERATURE

PHILO MELVIN BUCK, JR., *M.A., Litt.D.*, Professor of Comparative Literature, *Chairman*

A major in this department serves a double purpose: first, to acquaint the student with the more important works, in translation or in the original, in the literature of the world and to show their present-day significance; and, second, to enable the student to study in their mutual relationships the literature in two or more languages. A major, therefore, in Comparative Literature is a composite

of courses in Comparative Literature and the literatures in two languages. For the sake of convenience only, the first is called the Major, and the second the Minors.

MAJOR. 20 credits in Comparative Literature, including Course 9, the remaining 14 credits being selected to offer the best background for the courses taken in the Minors. It is recommended that four of the credits be devoted to independent work, under the direction of an instructor of the department or in a proseminary, the result of which may be shown in a report.

MINORS. The two minors will correspond generally to the minors defined in the catalogue (and in this bulletin) by the several language and literature departments. Such combinations as English and Latin, English and a modern language, Latin and a modern language are suggested. The fulfillment of the practice teaching requirement will, of necessity, be met in these departments. In the case of a modern foreign language the student is expected to take the course in composition and conversation.

In addition, the student majoring in Comparative Literature is urged to take as electives appropriate courses in one or more of the following departments: History, Philosophy, Art History and Criticism.

A teachers' course in Comparative Literature is not offered, but majors in Comparative Literature find it possible to fit themselves to teach in two departments, and should arrange their teachers' course in accordance with their plans. Educational Methods 76 (The Teaching of English), or any course in the teaching of ancient or modern languages, is accepted in lieu thereof.

ECONOMICS

EDWIN E. WITTE, *Ph.D.*, Professor of Economics, *Chairman*

MAJOR. A minimum of 30 selected credits. (Please note also statutory requirements for certification described on page 394.)

MINOR. Educational Methods 84 (for 2 credits) and a minimum of 15 credits in economics, to include Economics 1a and 1b (8 credits).

No regular course in the teaching of economics is offered but a teachers' course in a related subject such as history, will be accepted.

EDUCATION

For general information concerning the equipment and the courses offered in education, see pages 425-433. For detailed information relative to the special requirements of courses in education for the University Teachers' Certificate, see page 394.

ENGLISH

MERRITT YERKES HUGHES, *Ph.D.*, Professor of English, *Chairman*

MAJOR. A minimum of 34 credits, including (a) Freshman English; (b) one, and one only, of the following: 30, 33; (c) one, and one only, of the following: 37, 136, 137; (d) two of the following, one of which must be either 31 or 57: 31, 57, 160, 161, 162; (e) not more than two of the following (one will suffice): 34, 35, 40; (f) a thess or its equivalent; (g) English 123 or 124, and Educational Methods 76.

MINOR. I. One course, and only one, from the following group: 30, 33. II. One semester from the composition courses of the following group: 2b, 5, 6, 8. III. 123 or 124. IV. One of the following groups: (a) 34 and 35; (b) one, and only one, among 37, 136, 137; (c) both semesters of 40. V. Educational Methods 76.

Educational Methods 76. The Teaching of English. II; 2 or 5. Prerequisites: English 123 or 124 and senior standing. Mr. Pooley.

FRENCH AND ITALIAN

HUGH ALLISON SMITH, *M.A.*, Professor of French, *Chairman*

Students who specialize in French or Italian are advised to elect related courses in history, art, other languages and literatures, and philosophy. Those who expect to continue for advanced degrees should note that knowledge of another foreign language is required for the M.A., and that for satisfactory work in Romance philology some knowledge of Latin is indispensable. Both Latin and German as well as another Romance language are required for the Ph.D., and should be acquired as early as possible.

Educational Methods 81. The Teaching of French and Italian. I, II; 2-5 cr. Miss Johnson.

FRENCH

All majors and minors in French or Italian are required to register with the Department at the beginning of their candidacy. To be accepted as a candidate one must have a minimum grade-point average of 1.5 in the first two years of the language.

MAJOR. For Departmental recommendation in the major, candidates for the University Teachers' Certificate must be able to read comprehendingly classical and modern French, have a reasonable ability to understand and speak French, and some knowledge of French literature and culture.

A minimum of 28 credits in advance of French 1b is required, including the following specific training:

(a) 4 credits of composition and conversation (25, 124, or 127), with grade *B*, or equivalent training (training in the French House is accepted toward this requirement);
(b) 2 credits of phonetics (190);
(c) 5 credits in educational methods (81) (not counted in the 28 credits);
(d) 6 credits in courses of literature or civilization in the 100-group;
(e) 4 credits of thesis or thesis substitute;
(f) a certificate in oral French, showing ability to use the spoken language in teaching, to be obtained from the department either by examination or by furnishing evidence of adequate training at the French House, or elsewhere.

MINOR. Students intending to minor in French should have their plan of French studies approved by a professor of the Department. Minimum, 18 credits in advance of 1b, including:

(a) Two credits in French conversation and composition with grade of *B*, to be acquired before the second semester of the junior year. (Train-

ing at the French House is accepted in lieu of this requirement by special arrangement made in advance);
(b) French 21 or 3 credits in a more advanced course in French literature;
(c) 2 credits of phonetics (French 190).

Minor students not majoring in some foreign language are strongly advised to take Educational Methods 81 in addition.

French 13 does not count toward the requirement for major or minor.

ITALIAN

MAJOR. (a) 24 credits in advance of 1b, including 4 credits in composition and conversation with an average grade of *B*. (b) Educational Methods 81, 2-5 credits.

MINOR. 18 credits in advance of 1b, including 2 credits in composition and conversation.

GENERAL SCIENCE

(See Natural Science, pages 403-404)

GEOGRAPHY

VERNON CLIFFORD FINCH, *Ph.D.*, Professor of Geography, *Chairman*

MAJOR. A minimum of 30 credits as prescribed by the Department of Geography, and Educational Methods 82. (3 credits). (Please note also statutory requirements for certification described on page 394.)

MINOR. Educational Methods 82 (for 2 credits) and a minimum of 15 credits in geography, to include Geography 1-2, 5, or 17, and a regional course, preferably Geography 103.

Educational Methods 82. The Teaching of eGography. II; 2 or 5 cr. Mr. Whitaker.

GERMAN

WILLIAM FREEMAN TWADDELL, *Ph.D.*, Professor of German, *Chairman*

MAJOR. A minimum of 24 credits in advance of course 2b. In addition to the thesis, or thesis substitute, these credits must include courses 25 or 112, 191, 131 (at least for four credits), 150, 151, and Educational Methods 83.

MINOR. A minimum of course 25, at least 8 credits in literature from courses beyond 2b, including 4 credits from courses in Group B (101-109), and Educational Methods 83, i.e., at least 14 credits beyond course 2b.

Students who are preparing to teach German as their major or minor subject should consult Professor Roeseler, if possible at the end of their sophomore year, or, by letter during the summer months, before the opening of the fall semester. Those who have done a considerable amount of work elsewhere, or who have had successful teaching experience, may be excused, by action of the department, from some of the required work. Such excuse will generally be granted only on the basis of an examination, and in no case will students be

recommended by the department unless they have taken at least 4 credits in German at Wisconsin.

Educational Methods 83. The Teaching of German. II; 2 or 5 cr. For seniors and graduates. Graduate credit on special recommendation of the instructor. Mr. Roeseler.

HISPANIC STUDIES

JOAQUIN ORTEGA, *M.A.*, Professor of Spanish, *Chairman*

MAJOR. (1) Pre-education sequence IV. (2) Economics 1a (General economics) is required. (3) The following courses are recommended for election in the first two years: Geography 1-2 (physical geography: the natural environment) or Geography 5-6 (Regional world geography: natural and cultural aspects); Geography 3 (Economic geography); History 2 (Modern European history); History 4 (History of the United States); Political Science 7 (American government and politics). (4) The teaching major in Spanish (see page 405). (5) Basic courses as follows:

	Credits
Art History 157—Spanish Art (or cognate fields of Spanish art offered by this department)	2
Economics 151—Latin America: economic development and trade	3
Geography 102—Geography of South America	3
Geography 111—Geography of Middle America	2
History 119—Latin American history History 130—History of Spain, 1000-1825	6
Journalism 121—Reporting Hispanic affairs	2
Political Science 131—The United States and Latin America	3
Spanish 21—Survey of Spanish literature	6
Spanish 47—Spain and Spanish America of today	4
Spanish 117—Commercial and industrial practice in Hispanic countries	2
Spanish courses numbered above 100 in the field of language, besides 117 above (2 cr.); literature (4 or 6 cr.); and civilization of Spain and Spanish America (2 cr.)	8–10
Total	41-43

For further information about this matter consult bulletin of the College of Letters and Science, pages 62-63.

HISTORY

JOHN DONALD HICKS, *Ph.D.*, Professor of History, *Chairman* (1938-39)

MAJOR. Not less than 32 nor more than 40 credits in history to include: History 2 (6-4 cr.) or History 3b (5 cr.)*; one other introductory course (History 1, 5, or 10 for 4-6 cr.); History 4 (6 cr.); at least a semester course, either elementary or advanced, in each of the fields of ancient and medieval history, counting History 5a as medieval history; at least 16 credits in advanced history

*Students who elect History 3b may not elect History 1 or 2.

courses taken at the University of Wisconsin, of which 2 in each semester of the senior year may, in the judgment of the adviser, be assigned to the preparation of a thesis. Outside the department, Educational Methods 84 (5 cr.), Economics 1a, and Political Science 1 or 7 are required, and Sociology 110 (Pre-history) and Geography 1-2 are strongly recommended. (Please note also statutory requirement for certification, described on page 392.)

MINOR. Educational Methods 84 (2 cr.) and a minimum of 16 credits in history, including at least 4 credits in advanced courses at the University of Wisconsin.

Educational Methods 84. The Teaching of History and the Social Studies. I, II; 2 or 5 cr. Miss Johnson, Mr. Edgerton.

A GENERAL MAJOR IN AMERICAN INSTITUTIONS IN THE DIVISION OF HISTORY AND THE SOCIAL SCIENCES

Students in the School of Education completing this *major* are exempt from the requirement of a minor. The major includes the following requirements:

1. A minimum of *forty-five* credits in the division, so selected as to form a coherent group of courses.
2. History—*Ten* credits in history courses open to freshmen. (Ancient, Medieval, Modern, English, European from the Fall of Rome, or the sequence English History followed by English Constitutional History), and *six* credits in addition, to be taken in American History.
3. At least *twenty-nine* credits (or such additional number as to total, with the history credits, at least forty-five credits) to be earned in three departments in the courses listed in section 4. Not more than *six* credits earned in courses numbered under 100, in addition to the history requirement stated above, will be counted toward the major.
4. The courses from which selections may be made are listed herewith by department, number and credits per semester.

Anthropology and Sociology

46	Introduction to Anthropology	3
125	Rural Sociology	2
132	Introductory Social Statistics	3
139	Social Psychology	3
140	General Sociology	3
141	Poverty and Dependency	3
160	Marriage and the Family in America	2
161	Criminology and Penology	3
163	Population Problems	2
177	Social Legislation	2
192	Rural Regional Planning	2
197	Personality and Social Adjustment	3

Economics

1	General Economics	4
5	Money and Banking	3
19	Economic History of the United States	3
103	Public Expenditures and Public Debts	2
117	Outlines of Land Economics	3
119	The Evolution of Industry	3
120	Social Insurance	2 or 3
122	Labor Problems	3
123	Labor Legislation	3
124	Taxation	3
127	Cooperative Marketing	3
129	Cooperative Management Problems	2
133	Financial History of the U. S.	3
135	Railway Transportation	2-3
136	Transportation Problems	3
137	Corporation Finance	3
142	Public Utilities	3
145	American Labor History	3
146	Government and Business	?
152	Farmer Movements	2
174	The Labor Market	3
191	The Credit System	3

Geography

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

History

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

Philosophy

11 Elementary Logic ---------- 3
21 Introduction to Philosophy ---------- 3
25 Philosophy and the American Enterprise ---------- 3
41 Ethics ---------- 3
111 Applied Logic ---------- 3
120 Philosophy of Science---------- 3
132 History of Modern Philosophy------ 3
139 American Philosophers ---------- 3
200 The Development of American Thought (Graduate Seminar open to Seniors)

Political Science

7 American Government ---------- 3
13 Municipal Government ---------- 3
112 Constitutional Law ---------- 3
122 Political Parties and Public Opinion 3
123 American Diplomacy ---------- 2
125 World Politics ---------- 3
126 Legislation ---------- 2
131 The United States and Latin America ---------- 3
134 County and Township Government 2
135 Municipal Administration ---------- 3
137 International Organization and the League of Nations---------- 3
139 State Government ---------- 2
140 Far Eastern Politics ---------- 3
143 Introduction to Public Administration ---------- 3
144 Police Power and Social Legislation 3
152 Legislation for the Conservation of National Resources---------- 3
165-6 American Political Thought-------- 3

A Divisional Committee of Advisers, composed of the following members,—Professors Hicks (History), Jerome (Economics), Boegholt (Philosophy), Trewartha (Geography), Kimball Young (Sociology), Walter Sharp, chairman (Political Science),—administers the major with the following functions assigned to it:

(a) the assignment of its members to advise students electing the major;

(b) the selection of various groupings of courses to provide alternate programs within the major, and (c) changes in the selection of departmental courses to be included in the major.

JOURNALISM

GRANT MILNOR HYDE, *M.A.*, Professor of Journalism, *Chairman*

MAJOR. A minimum of 30 credits, including the usual studies of the School of Journalism and Educational Methods 76. Students combining a minor in English with this major are not required to take advanced courses in English composition, English 2, 5, or 6.

MINOR. A minimum of 15 credits, including at least Journalism 191 and the first semester of courses 2 and 3, and Journalism 110.

Educational Methods 76. The Teaching of English. II; 5 cr. Prerequisite: English 123 or 124 and senior standing. Mr. Pooley.

LATIN

WALTER RAYMOND AGARD, *B.Litt.*, Professor of Greek, *Chairman*

MAJOR. A minimum of 30 credits beyond Latin 1b (2 years of high-school Latin) or 22 credits beyond Latin 10b (4 years of high-school Latin), including Latin 20 (6 credits), 31 and 32 (6 credits), 35 and 101 (4 credits), and a minimum of 6 credits in reading courses of the 100-group. For the teaching major 5 credits in Methods of Teaching Latin (Educational Methods 90) in addition to courses listed above.

MINOR. A minimum of 22 credits beyond Latin 1b (2 years of high-school Latin) or 14 credits beyond Latin 10b (4 years of high-school Latin), including Latin 20 (6 credits), 31 and 32 (6 credits) and 35 (2 credits). Students who major in another foreign language and take the methods course in it, may omit the Methods Course in Latin for the minor, but will substitute three credits of advanced Latin reading in courses of the 100-group.

Educational Methods 90. The Teaching of Latin. I; 2 or 5 cr. Miss Guyles.

LIBRARY SCIENCE

The Library School offers the following courses for those who are qualifying for positions as high-school librarians:

LIBRARY SCIENCE FOR TEACHERS. Yr; 2 cr. The object of the course is to qualify those taking it to assume, in connection with their teaching, the supervision of high-school libraries, and to give instruction to high-school students in the use of books, and libraries and in the means and methods of developing good habits and right tastes in reading. This course does not qualify for full-time school library positions, but is for teacher-librarians as required by the Wisconsin Statutes. Open to seniors and graduate students, and to juniors by special permission. Miss Smith.

MATHEMATICS

MARK HOYT INGRAHAM, *Ph.D.*, Professor of Mathematics, *Chairman*

MAJOR. (a) A minimum of 21 credits, which shall consist of Courses 5 (or 54 and 55); 6; and other courses in mathematics numbered 91 or above, excluding Course 135. Students majoring in this department must earn at least as many grade-points as credits in all work included in the major. Eligibility to write a thesis is based on a minimum of 9 credits in mathematics taken at the University of Wisconsin and is determined by the average number of grade-points per credit earned in the courses included in the major. Those whose average is less than 2.0 are not permitted to write theses; those with averages above 2.0 are subject to individual rulings by the department, with consideration given to the student's record and wishes. Students entering the junior class with advanced standing who expect to complete a major in mathematics in four semesters should previously have completed the equivalent of Mathematics 5. (b) Education 1, 2, 3; (c) a knowledge of solid geometry acquired in the secondary school or elsewhere; (d) Mathematics 91 (not required) is recommended as a desirable course for teaching majors.

MINOR. A minimum of 15 credits, including course 5a or 54, and excluding courses 7, 24, and 137. It is understood that at least 6 of these credits shall be earned in residence at the University of Wisconsin with a grade not lower than B, of which not more than three may be counted from courses 1, 2, or 3. In addition, Educational Methods 93 or its equivalent is required. A knowledge of solid geometry, acquired in college or elsewhere, is expected.

Educational Methods 93. The Teaching of Mathematics. I; 2 or 5 cr. Not offered 1938-29. (Included in Education 1, 2, 3.)

MUSIC

CARL E. BRICKEN, *B.A.*, Professor of Music, *Director*

The School of Music offers a four-year course leading to the degree of Bachelor of Music; see special bulletin for detailed requirements. The following credits are required for the University Teachers' Certificate:

	Credits
Educ. 75—Psychology and practice of teaching (junior year)	5
Educ. 31—Principles of secondary education (senior year)	3
Music 36, 37, 51, 53, or 92 (to be determined by the major field)	5
*Electives in the Department of Education	5
	18

MINOR.

Music 1—First-year harmony	6
Music 75—Advanced solfeggio	2
Music 89—Instrumental class instruction	2
Choice of { Music 36—Pedagogy (App. music); Music 53—Principles of secondary school music; Music 92—Instrumental music administration }	2 or 3
Music 65—Appreciation of music	2
Music 66—Conducting	2
Choice of { Music 76—Orchestra; Music 77—Choral music; Music 80—Band }	2 or 1
Applied music	2
	20

NATURAL SCIENCE

MAJOR. 55 credits in science for those who have had less than three years of science in high school; 50 credits for those who have had three years or more of science in high school. These credits must represent one full-year course in each of three of the following science fields: biology, physics, chemistry, and earth science (geology or physical geography); 10 additional credits in one of

*May include a course in the teaching of the minor subject, for two credits.

these fields; 4 credits in physiology; and such elective courses in science as may be needed to make up the total requirement of 50 or 55 credits. (Please note also statutory requirement for certification, described on page 394.)

(NOTE: This teaching major in natural science will be regarded as fulfilling the requirement of the School of Education for both a major and a minor.)

GENERAL SCIENCE MINOR for students whose major is a field other than Natural Science: 15 credits in science, 5 of which must be in physics, 5 in chemistry, and 5 in biology, in addition to Educational Methods 97. (Please note also statutory requirement for certification, described on page 394.)

Educational Methods 97. The Teaching of Science, I, II; 2 or 5 cr. Mr. Davis.

(For additional information consult Associate Professor Ira C. Davis, Wisconsin High School.)

PHYSICAL EDUCATION

(See pages 412-419)

PHYSICS

LEONARD ROSE INGERSOLL, *Ph.D.*, Professor of Physics, *Chairman*

MAJOR. A minimum of 29 credits which shall include the following courses: 1 or 31 or 51-52, 10, 100, 102, 103, 104a, and Educational Methods 97. Other credits are to be selected from 7, 104b, 106, 112, 115, 116, 117, 118, 119, 124, 126, 134.

MINOR. A minimum of 15 credits selected from the courses listed for a major.

Educational Methods 97. The Teaching of General Science. I, II; 2-5 cr. Mr. Davis.

PHYSIOGRAPHY

(See Geography, page 398)

PHYSIOLOGY

WALTER JOSEPH MEEK, *Ph.D.*, Professor of Physiology, *Chairman*

MAJOR. A minimum of 23 credits as follows: 3 credits in physiological chemistry; 6 credits in anatomy or zoology as approved by the Department of Physiology; 11 credits in physiology, including thesis; 3 credits in any department of the Medical School, as approved by the Department of Physiology.

In order to fulfill these requirements, Physics 1 or 31, Chemistry 1, and Zoology 1 should be completed before the beginning of the junior year.

MINOR. A minimum of 11 credits in the following courses: Physiology 1, 3, or 17, 4 cr.; Physical Education 107 or 198, 2 cr.; either Agricultural Bacteriology 1 or 4, 5 cr. General chemistry is strongly advised as a prerequisite to physiology and bacteriology.

POLISH

JOZEF BIRKENMAJER, *Ph.D.*, Acting Professor of Polish, *Acting Chairman*

MAJOR. (a) 24 credits in advance of 1b. (b) Educational Methods 49.
MINOR. (a) 18 credits in advance of 1b. (b) Educational Methods 49.

Educational Methods 49. The Teaching of Polish. I; 2 or 5 cr. Practice teaching in Polish is not offered in the Wisconsin High School; however, those who elect this course are required to do participation-teaching in another subject. Not offered 1938-39. Mr. Birkenmajer.

POLITICAL SCIENCE

FREDERIC AUSTIN OGG, *Ph.D.*, Professor of Political Science, *Chairman*

MINOR. Political Science 7, plus a minimum of 12 credits. In addition, Educational Methods 84, The Teaching of History and the Social Studies.

Educational Methods 84. The Teaching of History and the Social Studies. I, II; 2 or 5 cr. Miss Johnson, Mr. Edgerton.

SOCIOLOGY AND ANTHROPOLOGY

JOHN LEWIS GILLIN, *Ph.D., LL.D.*, Professor of Sociology, *Chairman*

MAJOR. Not less than thirty nor more than forty credits in sociology and anthropology, to include Sociology 1 and 2 (6 cr.), 46 (3 cr.), 132 (3 cr.), and 140 (3 cr.). Outside the department: Educational Methods 84 (5 cr.); History 1 (4-6 cr.), 2 (4-6 cr.) 4 (6 cr.); Political Science 7 (3 cr.); Economics 1a (4 cr.); Geography 128 (3 cr.), or Speech 1 (2 cr.) and 3 (3 cr.). (Note also statutory requirements for certification described on page 394.)
MINOR. Sociology 1, 2, and 46 for a total of 9 credits, plus 6 additional approved credits, to make a total of 15, and Educational Methods 84 (2 cr.).

Educational Methods 84. The Teaching of History and the Social Studies. I, II; 2 or 5 cr. Miss Johnson, Mr. Edgerton.

SPANISH AND PORTUGUESE

JOAQUIN ORTEGA, *M.A.*, Professor of Spanish, *Chairman*

MAJOR. 29 credits in advance of 1b, of which at least 2 must be in composition courses under 100, 6 in Spanish 21, and 9 in courses of the 100-group. The required courses are: Educational Methods 81 (5 cr.); Spanish 190, phonetics, (2 cr.) with a grade of *B;* and Spanish 116, or 117, or 141 (2 cr.) with a grade of *B*. Well qualified students may apply to the chairman of the department for permission to write a thesis.
MINOR. 18 credits in advance of 1b. The required courses are: 2 credits in conversation and composition and 3 credits in literature. Minor students are advised (but not required) to elect Spanish 190, and also Educational Methods 81, if not majoring in another foreign language.

Educational Methods 81. The Teaching of Spanish. I, II; 2 or 5 cr. Miss Johnson.

PORTUGUESE. Special arrangements will be made for students interested in majoring or minoring in this language.

SPEECH

ANDREW THOMAS WEAVER, *Ph.D.*, Professor of Speech, *Chairman*

MAJOR. A minimum of 30 credits, including courses 1, 2, 3 or 4, 6, 16 or 25, and 141, to be taken in sequence so far as possible. Twelve credits must be in courses numbered above 100. In addition to the required 30 credits, five credits must be earned in Educational Methods 198.

MINOR. A minimum of 15 credits in approved courses, including courses 1 and 2. Also, 2 credits in Educational Methods 198.

Educational Methods 198. The Teaching of Speech in High School. I; 2 or 5 cr. Miss Borchers.

SPEECH CORRECTION MAJOR. A minimum of 30 credits, including courses 1, 2, 25, 185, 125, 126, 121, and 141, to be taken in sequence as far as possible. Fifteen credits must be in courses numbered above 100. In addition to the required 30 credits, 6 credits must be earned in Educational Methods 26 and 27. Students pursuing this major are required to complete certain extra departmental courses stipulated by the Wisconsin Department of Public Instruction as necessary for certification in Speech Correction. These include Binet Testing (Education 128, 3 credits); one of the following courses: Educational Psychology 119, 120 (Child Development), Sociology 197 (Personality and Social Adjustment), Home Economics 109 (Humanics); and 12 credits to be selected from other approved courses.

SPEECH CORRECTION MINOR. A minimum of 15 (14 for majors in Physical Therapy) credits, including courses 1, 25 or 24, 125 or 126, 185, 121. Also Educational Methods 26.

Educational Methods 26. Methods in Rehabilitation of Speech. II; 3 cr. Prerequisites: Speech 24 or 25 and 185. (Open only to majors in speech correction. Miss Powers.

Educational Methods 27. Methods in Speech Reading for Children. I; 3 cr. Prerequisite: Speech 185. (Open only to majors in speech correction.) Miss Powers.

ZOOLOGY

MICHAEL FREDERIC GUYER, *Ph.D. LL.D.* Professor of Zoology *Chairman*

MAJOR. A minimum of 30 credits, which will customarily include the following courses: Botany 1, Physiology 1, Zoology 1, 102, 104, 105, 106, and 118 or 126. Students majoring in this department, and having a grade-point average of 2.0 or above in zoology at the end of their junior year, are invited to confer with their advisers regarding the privilege of undertaking research work toward a thesis (Zoology 100) during their senior year. (Please note also statutory requirement for certification, described on page 392.)

MINOR. A minimum of 15 credits, chosen from the following list of courses: Zoology 1, 2, 102 or 119, 104, 105, 106, and 118 or 126. Courses 1 and 2, which together constitute a year's work, are especially recommended for those taking a minor in this department.

Educational Methods 71. The Teaching of Biology. II; 2 or 5 cr. Miss Weber.

COURSE IN ART EDUCATION

LEADING TO THE DEGREE OF BACHELOR OF SCIENCE (ART EDUCATION)

WILLIAM HARRISON VARNUM, Professor of Art Education, *Chairman*

The Department of Art Education offers a four-year undergraduate curriculum. For graduate students there is a major in art education, leading to the degree of Master of Science, with related courses in education.

PURPOSE AND PLAN

The department has two objectives: (1) the training of teachers and supervisors in the art field, and (2) courses intended for students in other colleges of the University who desire an appreciative or interpretative knowledge of art by studio participation.

Students registered in the College of Letters and Science desiring courses in art may elect for credit, and without special permission of the Dean of that college, the following courses: freshmen and others, Art Education 50 and 51; sophomores and above, 52, 54, 55, 56, 62, 70, 71, 120, 140, 160 and 168. Provided of course, that they have satisfied the prerequisites for such courses. Individuals registered in other colleges may secure permission from their respective deans. The elementary courses have been planned to meet the needs of beginners while those qualified may enter advanced courses.

Students who desire to take the four-year course should enroll in the Department of Art Education and in the School of Education at the beginning of the freshman year, although transfers from other colleges of the University, or from accredited art schools, may be made at later periods.

The curriculum is planned to train future teachers and supervisors of art (drawing, painting, design, commercial and professional art and the art crafts) for public or private schools, teachers' colleges and universities. For this purpose, the department has well equipped studios and a course of study designed to develop knowledge of basic art theories and practices with advanced courses guiding the development of the students' individuality and creative ability. Commercial and industrial art courses are sufficiently developed to enable one to teach in technical or vocational schools or practice commercial art. Recent trends in education point to the fact that college trained art instructors, supervisors, and special teachers increasingly are in demand. The degree of Bachelor of Science (Art Education) and the University Teachers' Certificate are awarded for the successful completion of the course.

EQUIPMENT

The Department of Art Education is housed in the Art Education Building, conveniently situated on the upper campus, with studios overlooking Lake Mendota. The building contains one large exhibition and lecture room, painting and life studio, with studios for modeling and ceramics, art metal, etching, designing, school crafts, graduate seminary, and freshman drawing. Other buildings on the campus house the studios for instrumental drawing and lettering, costume design, interior decoration and landscape planning. The Memorial Union has an adequate gallery for contemporary exhibitions, while the Student Workshop gives opportunity for remunerative art activities outside the classroom.

The Department has been granted a Frank Alvah Parsons scholarship entitl-

ing the holder to one year of study in the Paris studios of the New York School of Fine and Applied Arts.

The chart accompanying this course presents a graphic view of the entire departmental plan. The chart is divided into five vertical columns representing requirements and electives. The columns relate to (A) English requirements, (B) natural sciences, (C) history or foreign languages, (D) art education, (E) education, (F) electives. Below the double horizontal line are the various options open to the student under each heading and the number of options to be selected. Black areas within each column represent the minimum course requirements, while the shaded areas extend the black columns to the maximum. Elections from each column are obligatory.

GENERAL REQUIREMENTS

Although transfers to the Course in Art Education may be made at the opening of any semester, it is desirable to enroll in the freshman year. A total of 124 credits and 124 grade-points is required for graduation. Of this number 53 to 68 credits must be taken in departmental courses or their related options as indicated in column D.

DETAILED REQUIREMENTS

English: Column A. Ten or twelve credits of English are required under options 1, 2, or 3, of which one option is to be selected.

Option 1—Freshman English and sophomore survey of English literature in historical sequence.

Option 2—Freshman English and sophomore introduction to English literature from the appreciative rather than the historical viewpoint.

Option 3—Freshman English and sophomore composition.

The sophomore English course elected in the first semester must be continued in the second semester.

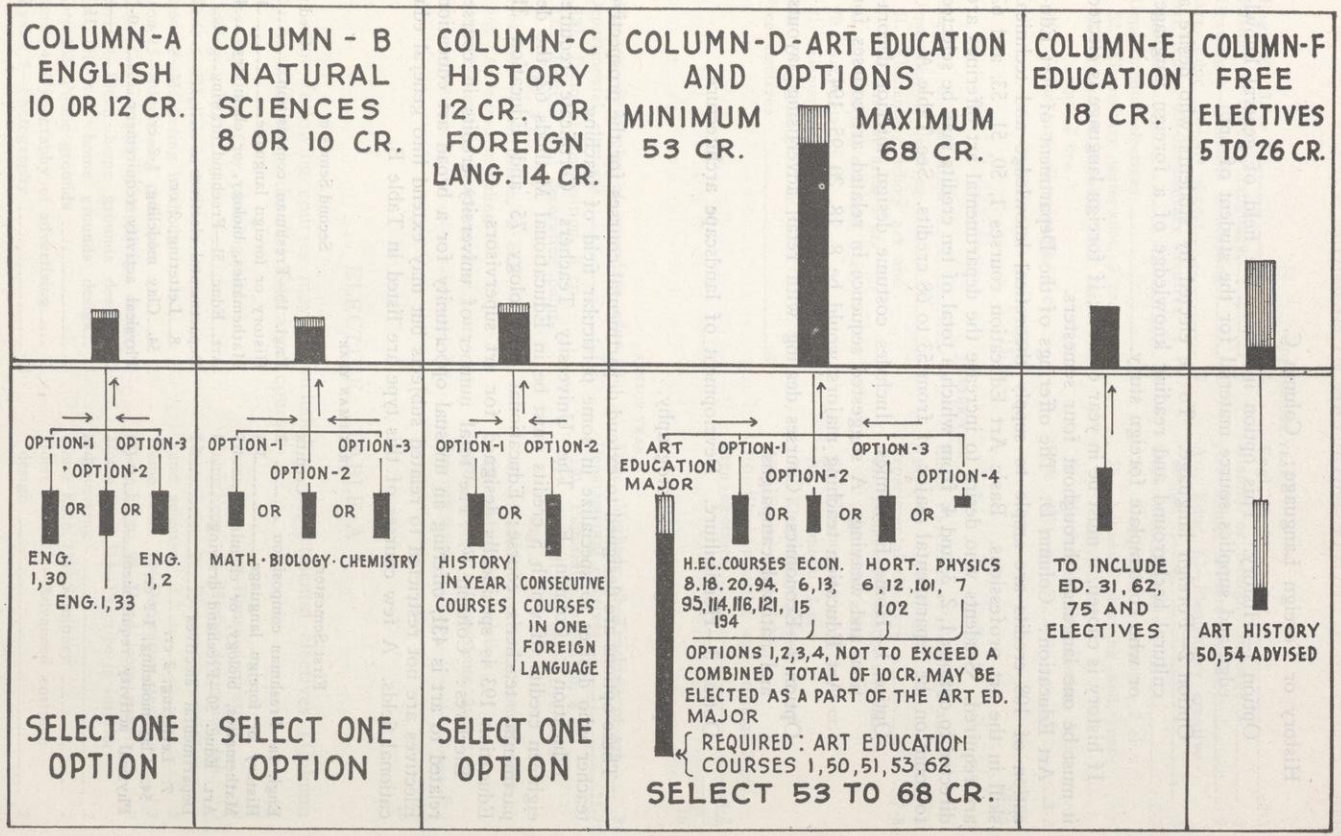
Natural Sciences: Column B. Eight to ten credits are obligatory under any one of the three options: eight in mathematics or ten in either biology or chemistry.

Option 1—Mathematics. Desirable for students who are interested in later graduate courses in educational statistics.

Option 2—Biology. For increasing the art student's field of source material.

Option 3—Chemistry. Applying directly to the art-crafts courses and graduate work in color analysis.

A science elected in the first semester of the freshman year must be continued throughout the year. Basic training in clear analytical thought underlies all science requirements.


COLUMN-A
ENGLISH
10 OR 12 CR.
OPTION-1
OPTION-3
OPTION-2
OR
OR
ENG.
1,30
ENG.
1,2
ENG. 1,33
SELECT ONE
OPTION
COLUMN - B
NATURAL
SCIENCES
8 OR 10 CR.
OPTION-1
OPTION-3
OPTION-2
OR
OR
MATH · BIOLOGY · CHEMISTRY
SELECT ONE
OPTION
COLUMN-C
HISTORY
12 CR. OR
FOREIGN
LANG. 14 CR.
OPTION-1
OPTION-2
OR
HISTORY
IN YEAR
COURSES
CONSECUTIVE
COURSES
IN ONE
FOREIGN
LANGUAGE
SELECT ONE
OPTION
COLUMN-D-ART EDUCATION
AND OPTIONS
MINIMUM
53 CR.
MAXIMUM
68 CR.
ART
EDUCATION
MAJOR
OPTION-1
OPTION-3
OPTION-2
OPTION-4
OR
OR
OR
H.EC. COURSES
8, 18, 20, 94,
95, 114, 116, 121,
194
ECON.
6, 13,
15
HORT.
6, 12, 101,
102
PHYSICS
7
OPTIONS 1,2,3,4, NOT TO EXCEED A
COMBINED TOTAL OF 10 CR. MAY BE
ELECTED AS A PART OF THE ART ED.
MAJOR
REQUIRED: ART EDUCATION
COURSES 1, 50, 51, 53, 62
SELECT 53 TO 68 CR.
COLUMN-E
EDUCATION
18 CR.
TO INCLUDE
ED. 31, 62,
75 AND
ELECTIVES
COLUMN-F
FREE
ELECTIVES
5 TO 26 CR.
ART HISTORY
50, 54 ADVISED

History or Foreign Language: Column C.

Option 1—History. This option increases the field of general knowledge and supplies source material for the student of art.

Option 2—Foreign language. To be elected by students who desire a cultural background and reading knowledge of a foreign language, or who contemplate foreign study.

If history is chosen, it must be in year courses; if foreign language is elected it must be one language throughout four semesters.

Art Education: Column D. The offerings of the Department of Art Education of 108 credits are ample to supply theoretical knowledge and technical skill in the art professions. Basic Art Education courses 1, 50, 51, 53, and 62 are required. Students who desire to increase the departmental art offerings are directed to options 1, 2, 3, and 4, from which a total of ten credits may be selected to count on the departmental major of from 53 to 68 credits. See Table A.

Option 1—Home Economics. Includes costume design, interior decoration, and weaving. A suggested sequence in related art courses for Art Education teaching majors would be 8, 18, 20, 95, 194.

Option 2—Economics. Courses dealing with retail advertising, layouts, and national campaigns.

Option 3—Horticulture. Development of landscape architecture.

Option 4—Physics,—Photography.

These options are designed to extend departmental courses for the prospective teacher who desires to specialize in some particular field of teaching.

Education: Column E. The University Teachers' Certificate requires eighteen credits of which 5 credits must be in Educational Methods 62, the departmental teacher's course; Educational Psychology 75 and Education 31. Education 193 is specifically designed for art supervisors.

Electives: Column F. The total number of university credits in courses related to art is 431, offering an unusual opportunity for a broad art education. Electives are not restricted to related subjects but may extend into general educational fields. A few courses of this type are listed in Table B.

FRESHMAN YEAR

First Semester	Credits
Engl. 1a—Freshman composition	3
History or foreign language	3-4
Mathematics, biology, or chemistry	4-5
Art. Educ. 50—Freehand drawing	3
Departmental electives	2-1
7. Lettering, 2 cr.	
54. Clay modeling, 1-2 cr.	
Physical activity requirement	0-(1)
	15-16

Second Semester	Credits
Engl. 1b—Freshman composition	3
History or foreign language	3-4
Mathematics, biology, or chemistry	4-5
Art. Educ. 51—Freehand drawing	3
Departmental electives	2-1
8. Lettering, 2 cr.	
54. Clay modeling, 1-2 cr.	
Physical activity requirement	0-(1)
	15-16

SOPHOMORE YEAR

Engl. 30, 33, or 2	2-3
History or foreign language	3
Drawing 1—Elements of drawing	3
Art. Educ. 53—Art digest	2
Art. Educ. 62—Elementary creative design	3
Departmental electives	2
52. Elementary watercolor, 2 cr.	
55. Advanced drawing and anatomy, 2 cr.	
56. Elementary oil painting, 3 cr.	
	15-16

Engl. 30, 33, or 2	2-3
History or foreign language	3
Art. Educ. 53—Art digest	2
Art. Educ. 62—Elementary creative design	3
Departmental electives	2-3
52. Elementary watercolor, 2 cr.	
55. Advanced drawing and anatomy, 2 cr.	
56. Elementary oil painting, 3 cr.	
Free electives	3-2
	15-16

JUNIOR YEAR

Electives in Education	4
Departmental electives	6-8
61. Elementary school art and industrial arts, 3 cr.	
63. Commercial contacts, 3 cr.	
70. Art metal, 3 cr.	
71. Elementary pottery, 2 cr.	
140. Stage design, 2 cr.	
Free electives	6-1
	16

Educ. Psych. 75—Psychology and practice of teaching	5
Departmental electives	7-8
61. Elementary school art and industrial arts, 3 cr.	
63. Commercial contacts, 3 cr.	
70. Art metal, 3 cr.	
71. Elementary pottery, 2 cr.	
140. Stage design, 2 cr.	
160 Block printing and etching, 2 cr.	
Free electives	4-2
	16

SENIOR YEAR

Educ. 31—Principles of secondary educ.	3
Departmental electives	7-9
120. Pictorial composition, 2 cr.	
132. Portrait and decorative painting, 3 cr.	
164. Art construction, 2 cr.	
168. Advanced modeling	
180. Topical art problems, 2 or 3 cr.	
Free electives	7-4
	16

Educ. Methods 62—Teaching of art	5
Departmental electives	5-7
120. Pictorial composition, 2 cr.	
132. Portrait and decorative painting, 3 cr.	
157. Museum apprentice course, 2 cr.	
168. Advanced modeling	
180. Topical art problems, 2 or 3 cr.	
Free electives	8-5
	16

ELECTIVE: TABLE A

The following courses may be included as departmental electives (Column D) by students in the Art Education course:

City Plan. 101—City planning and zoning	2
Econ. 6—English in business	2
Econ. 13—Marketing methods	2
Econ. 15—Advertising principles	2
Hort. 6—Principles of landscape design	3
Hort. 12—Elem. home grounds design	3
Hort. 101—Adv. home grounds design	3
Hort. 102—Public grounds	3
Journ. 4—Typography of advertising	1
Physics 7—Photography	2
Home Econ. 8—House decoration	2
Home Econ. 18—House decoration lab.	2
Home Econ. 20—Costume appreciation and selection	2
Home Econ. 94—Decorative textiles	3
Home Econ. 95—Hand loom weaving	2
Home Econ. 114—Practice in interior decorating	2
Home Econ. 116—Seminary	2
Home Econ. 121—Advanced costume design	2

ELECTIVES: TABLE B

The following are a few of the general electives (Column F) recommended for the consideration of students in this course.

Anatomy 120—Human anatomy	6	Psych. 1—Introduction to psychology	3
Art Hist. 50—Oriental, Greek and medieval art	3	Psych. 50—Applied psychology	2
Art. Hist. 54—Renaissance to modern art	3	Speech 1—Fundamentals of speech	3
Econ. 1a-1b—General economics	8	Speech 7—Public speaking	2
Sociology 1-2—Introductory sociology	6	Comp. Lit. 68—Contemporary novel	2
		Educ. 181—Vocational and educational guidance techniques	2-3

COURSE IN PHYSICAL EDUCATION AND ATHLETIC COACHING FOR MEN

LEADING TO THE DEGREE OF BACHELOR OF SCIENCE (PHYSICAL EDUCATION)

G. S. LOWMAN, CHAIRMAN, PROFESSOR OF PHYSICAL EDUCATION

A total of 124 credits and 124 grade-points is required for graduation from this course.

Professional courses for teachers of physical education and for directors of play and recreation were organized at the beginning of the year 1911-12. The course as it was first instituted was adapted to the needs of both men and women in one curriculum, but as the scope of the field developed, incorporating more and more of the informal side of physical education, particularly games and athletics,—the more natural forms of exercise,—there has come more specialization within the field itself. The demand now in the educational field requires men to be especially fitted to coach, direct, and supervise all forms of games and athletics, as well as to teach the formal and corrective phases of physical education.

In the organization of the course every effort has been made to meet the great demand for a standard four-year undergraduate course in physical education and athletic coaching which will produce independent and responsible directors and instructors in the various phases of this field.

The course is not merely a practice course, but has, as its foundation, work in education and in the fundamental sciences which gives the individual a basis for the application of the technical work. In addition to the work in education and science, courses in history, English, and other academic subjects, are included to afford the broad cultural background so essential to individuals who expect to hold the important positions in this particular field.

All transfer students will be held for the satisfaction of all requirements before graduation. The department reserves the right to transfer to some other course, at the close of the first semester, those students who do not show adaptability in this field.

In addition to the undergraduate curriculum outlined below, opportunity is offered for graduate work leading to the degree of Master of Science in Physical Education. See Graduate Bulletin.

FRESHMAN YEAR

First Semester	Credits	Second Semester	Credits
Engl. 1a—Freshman composition	3	Engl. 1b—Freshman composition	3
*Elective (one of three groups)	3-4	*Elective (one of three groups)	3-4
Zoology 1—Animal biology	5	Zoology 2—General zoology	5
Speech	2	Speech	2
Phys. Ed. 6—Theory and practice	2	Phys. Ed. 7—Theory and practice	2
	15-16		15-16

SOPHOMORE YEAR

Chem. 1a—General chemistry	5	Chem. 1b, or Physics 17 or 61	5
Anatomy 39—Human anatomy	4	Physiology 2	4
*Elective (one of three groups)	3	*Elective (one of three groups)	3
Phys. Ed. 8—Theory and practice	3	Phys. Ed. 16—First aid and safety education	2
		Phys. Ed. 9—Theory and practice	2
	15		16

JUNIOR YEAR

Phys. Ed. 119a—Physical examinations and therapeutics	3	Phys. Ed. 119b—Physical examinations and therapeutics	3
Phys. Ed. 58—Human mechanics	2	Educ. 2—Theory and practice of teaching	5
Phys. Ed. 107—Physiology of exercise	2	Phys. Ed. 11—Theory and practice	2-3
Phys. Ed. 59—Nature, function, and organization of play	3	Phys. Ed. 71—Camp admin. & scouting	3
Educ. 1—Theory and practice of teaching	3	Elective	2-3
Phys. Ed. 10—Theory and practice	3		
	16		16

SENIOR YEAR

Educ. 3—Theory and practice of teaching	4	Educ. 4—Theory and practice of teaching	3
Phys. Ed. 164—School health and hygiene	4	Phys. Ed. 168—Organization and administration	2
Phys. Ed. 12—Theory and practice	3	Phys. Ed. 13—Theory and practice	3
Electives	5	Electives	7-8
	16		15-16

DEPARTMENTAL ELECTIVES

Phys. Ed. 166—Physical therapy	2-3	Phys. Ed. 80—Community recreation	2
		Physiological Chemistry 114	3

Note: Three to four credits of electives in the senior year must be academic subjects

*Every student shall be required to meet one of the following group requirements:

1. Twelve credits in history, geography, and the social studies as follows: six credits in a year course in European or American history, and six credits made up of three in political science (Pol. Sci. 7) and three in economics, sociology, or geography (exclusive of Geography 1, 2, and 140) (12 credits)
2. Six credits in introductory philosophy (Phil. 21) and logic (Phil. 11) or 8 in mathematics. (6 or 8 credits)
3. (a) Ten credits in the literature of a foreign language; or
   (b) The passing of a proficiency test in one language; or
   (c) Intermediate knowledge of two foreign languages.

MINOR IN PHYSICAL EDUCATION

This minor is offered to qualify men to assist in the general physical education program, and to coach and supervise athletics in high schools and colleges in connection with the teaching of some academic subject; it may be elected by men students majoring in academic fields in the School of Education. Practice work, without academic credit, may be arranged at the discretion of the department, according to the student's needs. The completion of this minor does not entitle one to a special physical education teaching license in Wisconsin.

	Credits
Education 3—Theory and practice of teaching	3–4
Physical Education 168—Organization and administration	2
Physical Education 59—Nature, function, and organization of play	3
or	
Physical Education 107—Effects of physical activities (physiology of exercise)	2
Physical Education 17—Athletic training and first aid	2
Physical Education 8—Activities program (theory and practice)	2–3
Physical Education 9—Activities program (theory and practice)	2–3
	15

COURSE IN PHYSICAL EDUCATION FOR WOMEN

LEADING TO THE DEGREE OF BACHELOR OF SCIENCE (PHYSICAL EDUCATION)

BLANCHE M. TRILLING, CHAIRMAN, PROFESSOR OF PHYSICAL EDUCATION

A total of 124 credits and 124 grade-points is required for graduation from this course.

In the organization of the course every effort has been made to meet the great demand for a standard four-year course in physical education which will produce independent and responsible directors and instructors in the various phases of physical education.

The course is not merely a technical course but has as its foundation, work in education and in the fundamental sciences which gives the individual a basis for the practical work. In addition to the work in education and science, courses in history, English and other academic subjects are included to afford the broad cultural background so essential to individuals who expect to hold the important positions in this particular field.

It is usually necessary for a transfer student in this course to spend three years in study, unless entering from an accredited course in physical education. A student is on probation with the department for her first year. At the end of that time, or later, if she does not meet the departmental standard of scholarship, general aptitude, health, and ability, the department reserves the right to ask the student to withdraw from the department.

GRADUATE WORK. In addition to the undergraduate curriculum, outlined below, opportunity is offered for graduate study leading to the degree of Master of Science in Physical Education. It is possible to earn the degree of Doctor of Philosophy with a major in the Department of Education and a minor in the Department of Physical Education. For further information see the bulletins of the Graduate School.

GENERAL MAJOR

SUMMARY OF CREDITS

I. Specific Requirements

a. Academic or Non-Professional Courses

	Credits
English 1a and 1b	6
History or Mathematics	6–8
Chemistry 1a and 1b	10
English, Social Science, Foreign Language Option	6–10
Speech (voice training)	2
Physics 65	6
Zoology	3
Human Anatomy	6
Physiological Chemistry	3
Physiology	8
Hygiene or Health Education	2
Education 1, 2, 3, 4	15
Education elective	3
Academic elective	3
	79–85

b. Professional Courses

P.E. 56—Kinesiology	3
P.E. 175 and 176—Therapeutic gymnastics	4
P.E. 118—Physical diagnosis	2
*P.E. 168—Organization and administration	2
Thesis or Thesis Course	4
	15

c. Special Technique Courses

P.E. 20—Practice in dancing, gymnastics, and sports	0–8
**P.E. 31, 32, 33—Principles of coaching	6
P.E. 42—Theory and practice of play	2
P.E. 43—Rhythm and elementary dance forms	1–2
P.E. 49—Rhythm and elementary dance forms	1
	10–19

II. Electives to Complete 124 Credits

a. General Courses
(See Letters and Science Bulletin)

b. Professional Courses

P.E. 16—First aid	1
P.E. 59—Nature and function of play	3

*P.E. 167—Current Problems—offered in the summer, may be substituted for this requirement.

**Summer courses in sport techniques may be substituted, in part, for these requirements.

P.E. 60—Rhythmic form and analysis	1
P.E. 72—Music education for dance majors	3
P.E. 81—Camp leadership	2
P.E. 130—Tests and measurements in physical education	2
P.E. 133—Accompaniment for contemporary dance	3
P.E. 146—Philosophy and theory of the dance	2–3
P.E. 159—Play, recreation and leisure time problems	2
P.E. 160—Advanced rhythmic form and analysis	2
P.E. 165—Dance composition	2
***P.E. 166—Physical therapy	2–3
***P.E. 177—Advanced therapeutic gymnastics	3
P.E. 180—Topical course	—
P.E. 181—Thesis course for dance majors	2–4
Physiology 117—Problems in applied physiology	2
Physiology 200—Research in physiology	2

(See bulletins of the Summer Session for other courses, offered in summer sessions only.)

The schedule planned according to the following outline provides for correct sequence of courses and avoids time conflicts.

FRESHMAN YEAR

First Semester	Credits	Second Semester	Credits
English 1a	3	English 1b	3
Chemistry 1a	5	Chemistry 1b	5
History or Mathematics	3-4	History or Mathematics	3-4
Speech 5	2	P.E. 43—Rhythm and elementary dance forms	1-2
P.E. 20—Practice	2	P.E. 20—Practice	2
	15-16		14-16

SOPHOMORE YEAR

Physics 65	3	Physics 65	3
Zoology 17	3	P.E. 36—Human anatomy	6
P.E. 42—Theory and practice of play	2	P.E. 31—Sport techniques (baseball, tennis, archery)	2
*English, social studies, language	2-3	*English, social studies, language	2
P.E. 32—Sport techniques (basketball, hockey)	2	P.E. 49—Rhythm and elementary dance forms	1
Elective	1	P.E. 20—Practice	2
P.E. 20—Practice	2		
	15-16		15-16

*The student must fulfill one of the following three-group requirements:
1. The passing of a proficiency test in one language or of intermediate tests in two languages or ten credits in the literature of a foreign language.
2. Six credits in English in advance of English 1 or six credits in Comparative Literature.
3. Three credits in political science and three in economics, or sociology, or geography (excluding Geography 1, 2, and 140.)

***Will not be offered after 1938-39.

JUNIOR YEAR

P.E. 56—Kinesiology	3	Education 2	5
P.E. 175—Therapeutic gymnastics	2	P.E. 176—Therapeutic gymnastics	2
Physiology 115	5	P.E. 33—Sport techniques (swimming, track, and field)	2
Physiological Chemistry 114	3	P.E. 198—Health education	2
Education 1	3	Electives	0-2
P.E. 20—Practice	0	P.E. 20—Practice	0
Physiology 116	3		
	16		14-16

SENIOR YEAR

Education 3	4	Education 4	3
Thesis or Thesis Course	2	P.E. 118—Physical diagnosis	2
P. E. 168—Organization and administration of physical education	2	Thesis or Thesis Course	2
Education elective	3	Electives	7-9
Electives	3-5	P.E. 20—Practice	0
P.E. 20—Practice	0		
	14-16		14-16

DANCE MAJOR

The demand today for teachers of dance who have been trained especially for this field must be recognized. The more intellectual aspects of the dance and its increasing advance into the fields of psychology, art, and education make it a study well worthy of academic recognition. It is with the hope of fitting teachers not only with a comprehensive view of the dance as such, but also with the necessary general background which must accompany such preparation, that this course has been established.

SUMMARY OF CREDITS

I. Required Courses

a. Academic or Non-Professional Courses

	Credits
English 1a and 1b	6
English literature	4–6
Science	
General (biology preferred)	10
Special (physiology, anatomy)	10
History or mathematics	6–8
Psychology 1	3
Education 1, 2, 3, 4	15
Education elective	3
Philosophy	9
Speech	10
Music	5–10
Art History	6

b. Special (Departmental) 23 credits required. The following courses are preferred:

P.E. 20—Practice in dancing, gymnastics	8
P.E. 42—Theory and practice of play	2

P.E. 56—Kinesiology	3
P.E. 60—Rhythmic form and analysis	1
P.E. 133—Accompaniment for contemporary dance	2–3
P.E. 146—Theory and philosophy of dance	3
P.E. 160—Advanced rhythmic form and analysis	2
P.E. 168—Organization and administration of physical education	2
P.E. 175 and 176—Therapeutic gymnastics	4
P.E. 165—Dance composition	3
Thesis or thesis course	4

H. Electives to complete 124 credits

a. General Courses
(See Letters and Science Bulletin)

b. Professional Courses
(See electives under General Major, pages 415-416)

Because of the heavy activity program carried without academic credit, it is strongly urged that four years and two summers or five years be given to the course. This enables the student to elect other related subjects and to start studying for a master's degree. In the case of students transferring from other institutions, three years of residence work are usually required to meet the technical standards of this department.

The following is a suggested outline, showing the possibility of completing this course in four years and one summer.

FRESHMAN YEAR

First Semester	Credits	Second Semester	Credits
English 1a—Freshman English	3	English 1b—Freshman English	3
Speech 5—Voice training	2	History or Mathematics	3-4
History or Mathematics	3-4	P.E. 43—Rhythm and elementary dance forms	1-2
Botany	5	Zoology	5
*P.E. 20—Practice	2	*P.E. 20—Practice	2
	15-16		14-16

SOPHOMORE YEAR

English 33a or 30a—Literature	2-3	English 33b or 30b—Literature	2-3
Psychology 1—Introd. psychology	3	Art history	3
Speech 16—Dramatic expression	2	Speech 7—Public speaking	2
Physiology 1—Human physiology	4	Speech 18—Oral interpretation	2
P.E. 42—Theory and practice of play	2	Philosophy 11—Elementary logic	3
P.E. 60—Rhythmic form and analysis	1	P.E. 31—Sport techniques (tennis, archery)	1
*P.E. 20—Practice	2	P.E. 49—Rhythm and elementary dance forms	1
		*P.E. 20—Practice	1-2
	15-17		15-17

SUMMER SESSION

Anatomy 120—Human anatomy, 6 cr.

JUNIOR YEAR

Music 1a—Harmony	3	Music 72—Music education for dance majors	3
Music 72—Music education for dance majors	3	Education 2—Theory and practice of teaching	5
Education 1—Theory and practice of teaching	3	P.E. 33—Technique of swimming	1
P.E. 56—Kinesiology	3	P.E. 133—Accompaniment for contemporary dance	3
P.E. 160—Advanced rhythmic form and analysis	2	P.E. 160—Advanced rhythmic form and analysis	2
P.E. 175—Therapeutic gymnastics	2	P.E. 176—Therapeutic gymnastics	2
*P.E. 20—Practice	0	*P.E. 20—Practice	0
	16		16

SENIOR YEAR

P.E. 165—Dance composition	2-3	Phil 25—Philosophy and the human enterprise	3
Comparative Literature 165	3	P.E. 146—Theory of dance	3
P.E. 168—Organization and administration of physical education	2	P.E. 181—Thesis course	2
P.E. 181—Thesis course	2	Educ. 4—Theory and practice of teaching	3
Educ. 3—Theory and practice of teaching	4	Philosophy	3
Education elective	3	Speech	2
*P.E. 20—Practice	0	*P.E. 20—Practice	0
	16-17		16

CERTIFICATE IN PHYSICAL THERAPY

Students completing a major in physical education may become candidates for the *Certificate in Physical Therapy*. For specific requirements write to Dr. E. A. Pohle, Medical School. (Beginning 1937-38 the administration concerned with the granting of this certificate has been in the Medical School.)

COURSES FOR TEACHERS OF AGRICULTURE AND HOME ECONOMICS

The four-year courses in Agriculture and in Home Economics are given in the College of Agriculture. Students who are planning to teach these subjects, and to qualify for the University Teachers' Certificate, *should register in the School of Education at the beginning of the junior year.* Detailed information concerning all the courses offered may be found in the special bulletins of the College of Agriculture.

Graduates of the four-year Course in Agriculture and of the Course in Home Economics who have complied with the regulations relative to registration and to approval of major and minor subjects will be entitled to receive the University Teachers' Certificate upon fulfillment of the special professional requirements indicated below.

*P.E. 20 includes dance technique and electives in golf, horseback riding, bowling, outdoor baseball, tennis, archery, basketball, hockey, stunts and tumbling, gymnastics.

SPECIAL STATUTORY REQUIREMENTS

For teachers of science, the social studies, and agriculture.

Chapter 397, Laws of 1935, State of Wisconsin, reads as follows: "In granting certificates for the teaching of courses in economics, the social studies, and agriculture, adequate instruction in cooperative marketing and consumers' cooperatives shall be required." See *Agricultural Economics 127,* Cooperative Marketing (second semester), Mr. Bakken; or *Economics 173,* Economics of Consumption (second semester), Mr. Earley.

AGRICULTURE AND EDUCATION

JOHN AMBROSE JAMES, *B.S.,* Professor of Agricultural Education, *Chairman*

Students in the College of Agriculture who wish to prepare for the teaching of agriculture in secondary schools must complete, in addition to a major, the general requirements of the Long Course in Agriculture and the eighteen credits in education required for the University Teachers' Certificate as outlined below. The major consists of a minimum of fifteen elective credits in any department of the College of Agriculture. Students are advised to follow the elective list furnished by the Department of Agricultural Education in order to have proper technical courses.

Students who receive the degree of Bachelor of Science (Agriculture and Education) and who have satisfied the following requirements are entitled to receive the University Teachers' Certificate and a license to teach, issued by the State Superintendent: (a) registration in the School of Education at the beginning of the junior year, (b) the recommendation of the College of Agriculture, (c) the completion of the following courses:

	Credits
Educ. 75—Psychology and practice of teaching (junior year)	5
Educ. 31—Principles of secondary education (senior year)	3
Agr. Educ. 1—Rural education	2
Agr. Educ. 128—Program building in vocational agriculture	3
Educ. Methods 50—Teaching of agriculture (senior year)	5
	18

Educational Methods 50. The Teaching of Agriculture. I, II; 1-5 cr. Mr. Kivlin, Mr. Morrissey, Mr. Freitag.

HOME ECONOMICS AND EDUCATION

ABBY LILLIAN MARLATT, *M.S., Sc.D.,* Professor of Home Economics, *Director*

MAJOR. In the general education major, the food major, the textile major, or the vocational education major (taken in part in the summer session), the minimum requirements in home economics subjects taken during the junior and senior years are 31 credits, four of which represent the thesis or its equivalent. The special courses vary with the major, but not more than 40 strictly home economics credits may be counted toward the 124 credits required for graduation.

For details see special bulletin of the Course in Home Economics. The following courses are required for the teachers' certificate:

	Credits
Educ. 75—Psychology and practice of teaching (junior year)	5
Educ. 31—Principles of secondary education (senior year)	3
**Educ. Methods 52—Teaching of home economics (senior year)	5
*Electives in the Department of Education	5
	18

MINOR. A minor may be taken in foods, textiles, related art, or housing problems, including 10 to 20 credits in strictly related courses.

(1) A teaching minor in foods includes Educational Methods 52 and Home Economics 1a, 1b, and other related courses, such as 4, 3, and 6, to make 15 to 20 credits in strictly home economics subjects.

(2) A teaching minor in textiles includes Home Economics 2, 5, 10, 11, 50, 97, Educational Methods 52, 53, and other courses in home economics to complete 20 credits.

(3) A teaching minor in related art is 10 credits including Home Economics 2 or its equivalent, and courses elected from the following: 8, 18, 20, 94, 95, 114, 116, 118, 121, 194 and 216.

Educational Methods 52. The Teaching of Home Economics. I, II; 3 or 5 cr. Prerequisites: Senior standing; Education 75. Miss Henderson.

Educational Methods 156. The Teaching of Home Economics in the Part-time School and Rural Vocational Centers. Yr; 2 cr. lect.; 2 cr. off-campus teaching. Prerequisites: Senior standing and Education 75. Miss Henderson.

*May include a course in the teaching of the minor subject, for two credits.
**Candidates for the University Teachers' Certificate who choose to elect Educational Methods 156 for 4 credits will elect Educational Methods 52 for 3 credits only.

DEPARTMENTS OF INSTRUCTION

Abbreviations used in the announcement of courses:

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

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

ART EDUCATION

WILLIAM HARRISON VARNUM, B.P., *Professor of Art Education, Chairman*
ROLAND STEWART STEBBINS, R.M.A.A., *Associate Professor of Art Education*
DELLA FORD WILSON, M.A., *Associate Professor of Art Education*
HELEN WANN ANNEN, B.A., B.F.A., M.S., *Assistant Professor of Art Education*
HOWARD BAILEY DOKE, *Assistant Professor of Drawing and Descriptive Geometry*
JOSEPH DOW LIVERMORE, B.S., *Assistant Professor of Drawing and Descriptive Geometry*
CHARLES E. BROWN, M.A., *Lecturer in Art Education*
FRANK STILLMAN MOULTON, A.I.A., *Lecturer in Art Education*
ROBERT NICHOLAS SCHUMANN, *Instructor in Mechanical Practice*
JOHN OWEN VAN KOERT, B.E., M.A., *Instructor in Art Education*
JAMES S. WATROUS, M.A., *Instructor in Art Education*

The following courses are open in the same way as regular Letters and Science subjects: Art Education 50, 51, open to freshmen and others; Art Education 52, 54, 55, 56, 60, 62, 68, 70, 71, 120, and 140, open to sophomores and upperclassmen. Other courses are open to election by Letters and Science students upon approval of the Dean of that College.

Students who desire to supplement, by studio participation, courses offered in other departments, should enroll in the following courses: Speech 19 and Art Education 140, Stage design; Art History 101 and Art Education 160, Block printing and etching; Art History 50 or 54 and Art Education 50, Freehand drawing. The first semester of Art Education 62 is a desirable election for Home Economics majors.

18. ARCHITECTURAL DRAWING. II; 2 cr. Prerequisite: Art Education 1. 2:30-4:30 MW. Mr. Moulton.

50. FREEHAND DRAWING AND PERSPECTIVE. I; 3 cr. Introduction to pictorial expression. Open to freshmen. Lab. fee 1.25. 4 sections—8-10 MWF, 8-10 TTS, 1:30-3:30 MWF. Mr. Watrous, Mr. Van Koert.

51. FREEHAND DRAWING: LIGHT AND SHADE. II; 3 cr. Prerequisite: Art Education 50. Lab. fee $2.75. 3 sections—8-10 MWF, 1:30-3:30 MWF, 8-10 TTS. Mr. Watrous Mr. VanKoert.

52. ELEMENTARY WATERCOLOR RENDERING. Yr; 2 cr. Prerequisites: Art Education 50 and 51. Lab. fee $1.75. 8-10 TT. Mrs. Annen.

53. Art Digest: Orientation. Introduction to the art education field. Yr; 2 cr. Open to art education freshmen. 9 TT. Mr. Varnum.

54. Elementary Modeling. Yr; 1 or 2 cr. Introduction to plastic expression. Lab. fee per semester: 1 cr., $3.00; 2 cr., $6.00. 1:30-3:30 TT. Miss Wilson.

55. Advanced Drawing and Anatomy. Yr; 2 cr. Prerequisite: Art Education 51 or consent of instructor. Lab. fee $3.25 per semester. 1:30-3:30 MW. Mr. Stebbins.

56. Elementary Oil Painting. Yr; 3 cr. Prerequisites: Art Education 50 and 51. Lab. fee $2.00 per semester. 8-10 MWF. Mr. Stebbins.

61. Elementary School Art and Industrial Arts. Yr; 3 cr. Prerequisite: Junior standing. Lab. fee $6.00. 8-10 MWF. Miss Wilson.

62. Elementary Creative Design. Yr; 3 cr. Prerequisite: Art Education 50. First semester is recommended for Home Economics majors, with a prerequisite of Home Economics 2, Introduction to related arts. Lab. fee $1.00 per semester. 2 sections—10-12 MWF, 1:30-3:30 MWF. Mrs. Annen.

63. Commercial Contacts. Yr; 3 cr. Prerequisites: Art Education 7, 50, and 62. Lab. fee $1.50 per semester. 10-12 TT. Mr. Van Koert.

70. Art Metal. Yr; 3 cr. Copper, silver, gold, pewter. Prerequisite: Art Educ. 62. Lab. fee $5.00 per semester. 8-10 TTS. Mr. Van Koert.

71. Elementary Pottery. Yr; 2 cr. Prerequisite: Art Education 62. Lab. fee $6.00 per semester. Miss Wilson.

73. Wrought Art Metal. II; 2 cr. Not open to freshmen. Lab. fee $6.00. 3:30-5:30 TT. Mr. Schumann.

120. Pictorial Composition. Yr; 2 cr. Prerequisite: Consent of instructor. Fee $2.00. 11 TT. Mrs. Annen, Mr. Watrous.

132. Portrait and Decorative Painting. Yr; 3 cr. Prerequisite: Art Education 56. Lab. fee $5.00 per semester. 10-12 MWF. Mr. Stebbins.

140. Stage Design. Yr; 2 cr. First semester: Principles of design in relation to scenic designing. Individual and group presentations on model stages. 10 TT, Mr. Varnum. Second semester: Application of these principles; scene construction and lighting in Bascom Theatre. Prerequisite: Art Education 62. Also open to students registered or with credit in Speech 19a and 19b, or graduate standing in Speech. Fee $1.50. 3:30 TT. Mr. Lane, Mr. Buerki.

155. Museum Research. I; 2 cr. Prerequisite: Junior standing. 2:30 TT. Not offered 1938-39. Mrs. Annen.

156. Museum Administration. I; 2 cr. Prerequisite: Junior standing. Offered in 1937-38 and in alternate years. Mr. Brown.

157. Museum Apprentice Course. II; 2 cr. Prerequisites: Art Education 156 and senior standing. 3:30 TT. Mr. Brown.

160. Block Printing and Etching. II; 2 cr. Prerequisites: Art Educ. 62 and junior standing. 2:30-4:30 TT. Lab. fee $4.50. Mr. Varnum.

164. Art Construction. I; 2 cr. Prerequisites: Junior standing and consent of instructor. Mr. Watrous.

168 Advanced Modeling. Yr. * Prerequisities: Art Educ. 54 or consent of instructor, and junior standing. Lab. fee $3.00 per cr. Miss Wilson.

180. Topical Art Problems. Yr; 2-3 cr. Prerequisite: Senior standing. Staff.

210. Seminary, Art Education. Yr; 2 cr. Prerequisite: Graduate standing or teaching experience. 3:30-5:20 F. Mr. Varnum.

211. Experimental and Research Problems in Art Education. Yr; 2 cr. Prerequisites: Graduate standing and major in art education. Mr. Varnum.

TEACHERS' COURSE

The Teaching of Art. See Educational Methods 62, page 434.

DRAWING

Howard Bailey Doke, *Assistant Professor of Drawing and Descriptive Geometry*
Joseph Dow Livermore, B.S., *Assistant Professor of Drawing and Descriptive Geometry*

This is a duplicate listing of a portion of the courses offered by the Department of Drawing and Descriptive Geometry in the College of Engineering.

1. Elements of Drawing. I, II; 3 cr. Working drawings, third angle projection, lettering, tracing, and blueprinting. Open to freshmen. Two sections especially adapted to students in Art Education. 10-12 MWF and 1:30-4:30 TT. Lab. fee $1.00. Mr. Livermore, Mr. Moulton.

7. Freehand Lettering. I, II; 1 or 2 cr. Construction and composition of Classic Roman capitals, lower-case letters, English Gothic, black letter and modern script. Special emphasis given to the choice of lettering styles in advertising design. Lab. fee $ .75. 8-10 TT or 10-12 MW. Mr. Doke.

8. Advanced Freehand Lettering. I, II; 2 cr. Continuation of Course 7, which is prerequisite. Lab. fee $ .75. 10-12 TT. Mr. Doke.

9. Advanced Freehand Lettering. I, II; 2 cr. Continuation of Course 8, which is prerequisite. Lab. fee $ .75. 10-12 TT. Mr. Doke.

EDUCATION

C. J. Anderson, Ph.M., *Professor of Education, Chairman*
Arvil Sylvester Barr, Ph.D., *Professor of Education*
Hulsey Cason, Ph.D., *Professor of Psychology*
Stephen Maxwell Corey, Ph.D., *Professor of Education*
Alanson Harrison Edgerton, Ph.D., *Professor of Guidance*
John Guy Fowlkes, Ph.D., *Professor of Education*
Vivian Allen Charles Henmon, Ph.D., *Professor of Psychology*
Matthew H. Willing, Ph.D., *Professor of Education*

KIMBALL YOUNG, Ph.D., *Professor of Social Psychology*
HARRY FREDERICK HARLOW, Ph.D., *Associate Professor of Psychology*
KAI JENSEN, Ph.D., *Associate Professor of Education*
GORDON N. MACKENZIE, Ed.D., *Associate Professor of Education*
CLARENCE EDWIN RAGSDALE, Ph.D., *Associate Professor of Education*
THEODORE L. TORGERSON, Ph.D., *Associate Professor of Education*
J. MURRAY LEE, Ph.D., *Assistant Professor of Education*
JAMES KENNETH LITTLE, Ph.D., *Assistant Professor of Education*
HAROLD A. ENGEL, M.A., *Lecturer in Education*
HAROLD BERKLEY MCCARTY, M.A., *Lecturer in Education*
CARL HAROLD WALLER, B.S., *Lecturer in Education*

Students below the junior class are not admitted to courses in the Department of Education, except course 19 (open to sophomores), without the written permission of the instructor in charge. This permission will be granted only to mature students and to students properly prepared who are under the necessity of leaving the University, before graduation, to enter teaching.

Courses 1-4, 19, 31, 41, and 75 are regarded as elementary and as introductory to the advanced courses offered by the department. These courses are not open for election by graduates of professional courses of normal schools and teachers' colleges without special action by the department. Courses in the 200-group are open to qualified seniors who obtain the consent of the instructor.

MAJOR. Candidates for a bachelor's degree who elect education as a major must meet the following specific requirements:

1. Twenty-four credits in education, including courses 31, 75, and a minimum of two advanced courses in one of the following divisions of the Department of Education:

I. Educational Organization and Administration.
II. Educational Supervision.
III. Educational Curricula and Objectives.
IV. Instructional Procedures.
V. Measurement, Statistics, and Scientific Techniques.
VI. Guidance and Welfare.
VII. Educational Psychology.
VIII. History of Education.
IX. Philosophy of Education.
X. Child Development.
XI. Special Fields.

(1) Vocational Education and Industrial Arts.

A minimum of 15 credits in education must be completed in residence at Wisconsin, and not more than 6 credits may be elected before the attainment of junior standing. Courses in the Department of Educational Methods can not be counted toward a major in the Department of Education. The undergraduate thesis in education has been discontinued.

2. They must meet the university requirements for a teaching major, with the exception of a thesis, in one academic department other than education, or for teaching minors in two academic departments other than education. (These requirements should be fulfilled in departments whose subjects are taught in elementary or secondary schools.) A student must earn as many grade-points as

credits in these departments. Students who transfer from other institutions must complete a minimum of two advanced courses in their major or one advanced course in each of their minor subjects at the University of Wisconsin, and must earn as many grade-points as credits in the courses pursued in majors or minors at this University.

See pages 391-394 for Bureau of Educational Research, Supervisory Service Bureau, teachers' certificates, etc.

ELEMENTARY COURSES

1-4. THEORY AND PRACTICE OF TEACHING. Yr; 3-5 cr. A continuous course of three to four semesters integrating theory, special methods and practice in education. Registration must begin with Education 1. Prerequisites: Junior standing and consent of instructor. At present there are three sections of this course as follows:

MATHEMATICS

A three-semester course, for majors in mathematics, fulfilling all educational requirements for the University Teachers' Certificate except Education 31 and a three-credit elective in the Department of Education. Juniors elect Courses 1 and 2, 10 MWFq; seniors continues in Course 3, 9 TTqq. (Education 1—Mathematics is not offered 1938-39. Junior majors in mathematics should enroll in Education 75). Mr. Trump.

ENGLISH

A three-semester course, for majors in English, fulfilling all educational requirements for the University Teachers' Certificate except Education 31 and a two-credit elective in the Department of Education. Education 1—English—not offered 1938-39.

PHYSICAL EDUCATION

For students majoring in physical education. A four-semester course fulfilling all requirements for the University Teachers' Certificate, except a three-credit elective in the Department of Education. Course 1 (3 cr., Fee $ .50); Course 2 (5 cr., Fee $ .50); Course 3 (4 cr.); Course 4 (3 cr.). Mr. Nohr, Miss Cronin, Mr. Ragsdale.

19. INTRODUCTION TO CHILD DEVELOPMENT. I, II; 3 cr. A survey course dealing with the behavior and development of normal and abnormal children through the adolescent period. It includes a study of heredity, pre-natal development, the new-born infant, the significance of early behavior patterns, nutrition, learning, motivation, language, growth of meanings, behavior problems and discipline, intelligence, personality, and mental hygiene in childhood. Prerequisite: Sophomore standing. 9 MWF. Mr. Jensen.

31. PRINCIPLES OF SECONDARY EDUCATION. I, II; 3 cr. General principles that govern the organization, support, and administration of systems of education. A brief study of national systems of education. The history of educational method and the principles underlying various methods. Prerequisites: Education 75 and senior standing. 9 and 1:30 MWF. Fee $ .25. Mr. Lee.

41. Educational Psychology. I; 3 cr. An elementary survey of the field of phychology with emphasis upon school problems. *Not open to students registered in the School of Education.* Not offered 1938-39. Mr. Ragsdale.

47. The Psychology of Learning and Teaching. I; 3 cr. Open only to students registered in the School of Nursing. 1:30 TTq. Mr. Ragsdale.

75. Psychology and Practice of Teaching. I, II; 5 cr. Includes educational practice for *two credits.* Required of candidates for University Teachers' Certificate. Lectures: 9 and 11 MWF. Mr. Corey, Mr. Mackenzie, and staff teachers of the Wisconsin High School.

180. Independent Reading. I, II; credit to be arranged. Open to upper-group students of senior rank. Staff.

INTRODUCTORY COURSE FOR GRADUATE STUDENTS

210-214. Problems and Methods of Educational Research. Yr; 3 cr. Content of the course: (1) statistics; (2) measurements; (3) methods of research; (4) current problems in education. Required of graduate majors in education. 9-11 TT. Mr. Anderson, Mr. Barr, Mr. Corey, and Mr. Torgerson.

I. EDUCATIONAL ORGANIZATION AND ADMINISTRATION

261-262. Principles of Educational Administration. I. National, state, and county school organization and administration. II. Local school organization and administration. 3 cr. 9 MWF. Mr. Fowlkes.

271. Business Elements of Educational Administration and School Finance. I; 3 cr. 10 MWF. Mr. Fowlkes.

272. School Building and School-Building Programs. II; 2-3 cr. 10 MW. Mr. Fowlkes.

278. Seminary, School Administration. Yr; 2 cr. 4:30-6 W. Mr. Fowlkes.

II. EDUCATIONAL SUPERVISION

193. Introduction to the Supervision of Instruction. II; 3-4 cr. Includes practice in supervision, departmental conferences and class discussions of the objectives, methods, and practices of classroom supervision. Prerequisite: Senior standing. 1:30 MWF. Mr. Barr.

291. Seminary, Supervision of Instruction. II; 2 cr. Prerequisite: Teaching or supervisory experience, or consent of instructor. 4:30-6 Th. Mr. Barr.

294. Research in Supervision of Instruction. Yr; 2-3 cr. Mr. Barr.

III. EDUCATIONAL CURRICULA AND OBJECTIVES

140. Elementary School Curriculum. II; 3 cr. A foundation course in elementary education. Deals with the basic concepts of elementary education; the relation of growth, personality, and purposes and interests of the elementary pupil to the curriculum; and the various areas of experiences in the elementary curriculum. Emphasis will be placed upon newer practices

and possibilities in the development of social relations and understandings, language, quantitative thinking, scientific concepts, healthful living, and creative expression. 2:30 MWF. Mr. Lee.

141. Secondary School Curricula. I; 3 cr. Consideration is given in this course to the social function of the secondary school, the changing secondary school population, historical development of the curriculum, types of curricula, relation of the curriculum and the extra-curriculum, preparation of units of instruction, recent experiment and research in the various subject fields. Fee $ .25. 10 MWF. Mr. Lee.

243. Curriculum Construction. II; 2-3 cr. A consideration of immediate problems in the reorganization of the curriculum, such as implications of changing social conditions, concepts, approaches, and techniques in preparing instructional material; possibilities for integration; units of work and learning activities. Special attention will be given to state and local programs of curriculum construction. Opportunities will be given to develop desired curriculum materials. Fee $ .25. 11 MWF. Mr. Lee.

244. Seminary, Curriculum Construction. Yr; 2 cr. Opportunity to develop curriculum materials or work on personal problems in curriculum. Prerequisite: Consent of instructor. I, 8:30-10:30 S; II, 10:30-12:30 S. Mr. Willing, Mr. Lee.

245. Seminary, The Education of Teachers. I, II; 2 cr. Studies in the objectives, content, and administration of the teacher-education program. Mr. Anderson, Mr. Mackenzie.

IV. INSTRUCTIONAL PROCEDURES

134. Investigations in the Teaching of Science. II; 2 cr. 8 TT. Mr. Davis.

175. Advanced Course in the Psychology and Practice of Teaching. I, II; 3 cr. (Not open to students who have had Education 136.) Discussion of the aims and purposes of instruction; the choice of subject matter; the organization of subject matter for teaching purposes; motivation; provisions for individual differences; direction of learning; problems of discipline and pupil adjustment; appraisal of the means, methods, and products of instruction. Prerequisites: Graduate standing or teaching experience; consent of instructor. (Graduate students without teaching experience, preparing to teach at the secondary school level, may elect concurrently *Education 75* for two credits in practice teaching. Graduate assistants in the Departments of History, Mathematics, and French may elect *Educational Methods 184* for two credits in practice teaching.) 1:30 MWF. First semester, Mr. Barr. Second semester, Mr. Corey.

235. Seminary, The Experimental Study of Teaching. I; 2 cr. Discussions of the methodology of experimental research as applied to class-room instruction; critical analyses of experimental studies of instructional procedures; summaries of investigations related to selected problems in instruction; research on selected problems. 4:30-6:00 Th. Teaching experience or consent of instructor. Mr. Barr.

V. MEASUREMENTS, STATISTICS, AND SCIENTIFIC TECHNIQUES

123. Tests and Measurements in Music. I; 2 or 3 cr. Lectures 3:30 MW. Mr. Torgerson.

127. MENTAL TESTING (GROUP). I; 2-3 cr. Lecture 11 MW. Mr. Torgerson.

128. BINET TESTING. II; 3 cr. Lectures 1:30 MWF. Mr. Torgerson.

129. EDUCATIONAL DIAGNOSIS. II; 3 cr. Case study method in education, emphasizing diagnostic testing. Symptoms, causes and remedies for pupil maladjustment. Field work in conducting case studies. 3:30 MW; 1 hour lab. Mr. Torgerson.

137. INTRODUCTION TO MENTAL MEASUREMENT. I; 3 cr. A first course in measurement designed to provide: (a) an understanding of the principles of measurement; (b) an adequate acquaintance with available standardized achievement, intelligence, and aptitude tests; (c) a survey of the uses of standardized tests in the measurement of individual differences and in the solution of school problems. 10 MWF. Mr. Little.

225. TEST CONSTRUCTION: INFORMAL OBJECTIVE TESTS. I; 2 or 3 cr. Prerequisite: A course in statistics. 10:30-12:30 S. Mr. Torgerson.

226. SEMINARY, TEST CONSTRUCTION. II; 2 or 3 cr. Prerequisite: Education 225. Mr. Torgerson.

VI. GUIDANCE AND WELFARE

181. VOCATIONAL AND EDUCATIONAL GUIDANCE TECHNIQUES. II; 2-3 cr. 10 MW. Mr. Edgerton.

183. JOB AND OCCUPATIONAL ANALYSIS. I; 2-3 cr. 11 MW. Mr. Edgerton.

184. PRINCIPLES OF EDUCATIONAL AND VOCATIONAL GUIDANCE. I; 2-3 cr. 10 MW. (Not open to students who have had Educ. 180 previous to 1938-39.) Mr. Edgerton.

284. SEMINARY IN EDUCATIONAL AND VOCATIONAL GUIDANCE. Yr; 2 cr. 3:40-5:30 Tu. Mr. Edgerton.

288. RESEARCH IN PUPIL MALADJUSTMENT. Yr; 2-3 cr. Mr. Torgerson.

VII. EDUCATIONAL PSYCHOLOGY

NOTE: *Courses in this group are to be elected and recorded as "Educational Psychology" rather than as "Education." (Courses 108, 143, and 144 are duplicate listings of courses offered in the Department of Psychology in the College of Letters and Science; Courses 197 and 297 are offered in the Department of Sociology.)*

41. EDUCATIONAL PSYCHOLOGY. I; 3 cr. Not offered 1937-38. Mr. Ragsdale. (For description see elementary courses.)

47. THE PSYCHOLOGY OF LEARNING AND TEACHING. I; 3 cr. 1:30 TTq. Mr. Ragsdale. (For description see elementary courses.)

75. PSYCHOLOGY AND PRACTICE OF TEACHING. I, II; 5 cr. Lectures 9 and 11 MWF. Mr. Corey, Mr. Mackenzie, and staff teachers of the Wisconsin High School. (For descriptions see elementary courses.)

105. PSYCHOLOGY OF THE ELEMENTARY SCHOOL SUBJECTS. I; 3 cr. The functions of learning in the various subjects; the mental processes involved in mastering subject matter. The conformity of textbooks and of teach-

ing procedure to the principles discussed; a review of the investigative literature in the field. Not offered 1938-39.

106. Psychology of Exceptional Children. II; 3 cr. A study of the special psychological problems of atypical children, designed especially for teachers of exceptional children in special schools or classes. Educational problems of mental and emotional deviates, delinquents, and the physically handicapped will be considered. 11 MWF. Mr. Little.

107. Psychology of Motor Learning. Yr; 3 cr. The psychology of physical and manual skill; the motor characteristics of the different age levels; the psychology of rhythm; the function of motor behavior in intellectual and social growth; laboratory study of motor learning. Prerequisite: Psychology 1, or Education 41, or Education 75. Lab. fee $1.50. Lectures, 8 MW; lab. 1, 9 MW; lab. 2, 2:30 TT. Mr. Ragsdale.

108. Human Emotions and Motivation. I; 3 cr. Influence of emotions and motivation on goals, customs, interests, learning, reasoning, and behavior problems in children and adults. 11 TTq. Fee $1.00. Mr. Harlow.

109. Modern Systems of Psychology and Education. II; 3 cr. An advanced survey of the field of psychology as it affects education. Conflicting theories of learning, instinct, emotion, mental inheritance and mental organization with special reference to their effects upon educational theory and practice. The educational consequences of behaviorism, purposivism, psychoanalysis and Gestalt. Prerequisite: Psychology 1, or Education 41, or Education 75. 10 MWF. Mr. Ragsdale.

116. Psychology of the High-School Subjects. II; 2-3 cr. Psychological analysis of content, identification of types of learning, and survey of the results of school experiment and measurement. Not offered 1938-39.

143. The Psychology of Individual Differences and the Measurement of Intelligence. II; 3 cr. Individual differences in mental traits and their significance, mental inheritance, the correlation of mental abilities, and the measurement of intelligence. Prerequisites: Psychology 1 and junior standing. 11 MWF. Mr. Henmon.

144. The Psychology of Learning. I; 3 cr. The original nature of man, experimental studies of learning; mental work and fatigue. Prerequisites: Psychology 1 and junior standing. 11 MWF. Mr. Henmon.

175. Advanced Course in the Psychology and Practice of Teaching. I, II; 3 cr. (Not open to students who have had Education 136.) Discussion of the aims and purposes of instruction; the choice of subject matter; the organization of subject matter for teaching purposes; motivation; provisions for individual differences; direction of learning; problems of discipline and pupil adjustment; appraisal of the means, methods, and products of instruction. Prerequisites: Graduate standing or teaching experience; consent of instructor. (Graduate students without teaching experience, preparing to teach at the secondary school level, may elect concurrently *Education 75* for two credits in practice teaching. Graduate assistants in the Departments of History, Mathematics, and French may elect *Educational Methods 184* for two credits in practice teaching.) 1:30 MWF. First semester, Mr. Barr. Second semester, Mr. Corey.

197. Personality and Social Adjustment. II; 3 cr. Personality treated

from the angle of group participation, especially in the family, play group, gang, neighborhood, school, church, and various community groups. Literature on problem children, juvenile delinquency, adolescence and adult maladjustment examined critically. Prerequisites: Psychology 1 or Sociology 139, and junior standing. Fee $1.50. 10 MW, one quiz. Mr. Young and staff.

219. Research in Educational Psychology and Child Development. Yr; 1-2 cr. Mr. Corey, Mr. Jensen, Mr. Ragsdale.

245. Seminary, Motor Learning. II; 2 or 4 cr. Critical review of current experimental literature; training in methods of research. Prerequisite: Educational Psychology 107. Not offered 1938-39. Mr. Ragsdale.

249. Seminary in Educational Psychology and Child Development. Yr; 2 cr. 7-9 W. Mr. Corey, Mr. Jensen, Mr. Ragsdale.

297. Personality Problems. II; 2 cr. Selected topics which relate the development of personality to social-cultural environment, especially in relation to problems of the family, school, delinquency, and adult maladjustment. Prerequisites: Graduate standing and consent of instructor. Fee $1.00. 7:15-9:15 M. Mr. Young.

VIII. HISTORY OF EDUCATION

101. History of Modern European Education. I; 3 cr. Educational development in western Europe from the Renaissance to the World War. 10 MWF. Mr. Willing.

102. History of Ancient and Medieval Education. II; 3 cr. (Not offered 1938-39.) Mr. Willing.

103. History of American Education. II; 3 cr. 10 MWF. Mr. Willing.

106. Comparative Education. II; 3 cr. Survey of foreign school systems, especially those of France, Germany, England, Italy, and Russia. Emphasis on current developments and on contrasts with American practice. 11 MWF. Mr. Willing.

202. Proseminary, History of Education. Yr; 2-3 cr. Open to graduates and seniors. (Not offered 1938-39.)

IX. PHILOSOPHY OF EDUCATION

115. The School as a Social Institution. I; 2-3 cr. An introductory course in educational sociology, emphasizing the implications of distinctive American social structures and values for public education. 2:30 MW. Mr. Willing.

117. Educational Philosophy. II; 3 cr. Critical study of the educational thought of John Dewey. 2:30 MWF. Mr. Willing.

X. CHILD DEVELOPMENT

(Course 147 is a duplicate listing of a course offered in the Department of Psychology in the College of Letters and Science.)

19. Child Development. I, II; 3 cr. 9 MWF. Mr. Jensen. (For description see elementary courses.)

106. The Psychology of Exceptional Children. II; 3 cr. A study of the special psychological problems of atypical children, designed especially for teachers of exceptional children in special schools or classes. Educational problems of mental and emotional deviates, delinquents, and the physically handicapped will be considered. 11 MWF. Mr. Little.

112. Social Development and Education. I, II; 2 or 3 cr. The social development of school children; methods of studying social development; the social characteristics of different age levels; the foundations of social behavior; social development and education. 9 MW; 11 TT, plus individual reading or laboratory. Mr. Barr.

119. Child Development. I; 3 cr. An advanced course dealing with the behavior and development of children up to the adolescent period. Throughout especial attention will be paid to recent experimental findings and critical evaluation of methods and interpretations. (Not open to students who have had, or are taking, Psychology 147.) Fee $ .50. 11 MWF. Mr. Jensen.

120. Child Development: The Psychology of Adolescence. II; 3 cr. A study of the physical, physiological, social, and mental changes which characterize the transition from childhood to adult life, the underlying causes, and the extent to which these changes are predictable and controllable. Recent experimentation and theories dealing with the adolescent will be critically appraised and the implications for development and education considered. (Not open to students who have taken Educational Psychology 118.) 11 MWF. Mr. Jensen.

121. Physical Development. II; 2 cr. Physical growth from birth to maturity; methods of studying physical growth; physical characteristics of the different age levels; educational problems arising out of the facts of physical growth; inter-relationship of physical, intellectual and social traits. Not offered 1938-39. Mr. Ragsdale.

123. Psychology and Training of the Pre-School Child. I, II; 2-3 cr. A study of the development and education of children from infancy through the fifth year. Emphasis is placed on practical considerations. 2:30-4:30 Th. Mr. Jensen.

147. Genetic Psychology. I; 3 cr. A study of the origin of psychological processes, including general genetic principles; psychological heredity; early biological influences; native and acquired reaction tendencies; the origin of speech; thinking, learning, antisocial conduct, and personality. Prerequisite: Psychology 1 or equivalent. (Not open to students who have had, or are taking, Educ. Psych. 119.) 9 MWF. Mr. Cason.

219. Research in Educational Psychology and Child Development. Yr; 1-2 cr. Mr. Corey, Mr. Jensen, Mr. Ragsdale.

249. Seminary in Educational Psychology and Child Development. Yr; 2 cr. 7-9 W. Mr. Corey, Mr. Jensen, Mr. Ragsdale.

For related courses in other fields consult the announcements of the Departments of Home Economics, Medicine and Surgery, Nursing, Physiology, Psychology, Sociology, Speech, and Zoology.

XI. SPECIAL FIELDS

VOCATIONAL EDUCATION AND INDUSTRIAL ARTS

152. PRINCIPLES OF INDUSTRIAL ARTS EDUCATION. II; 2-3 cr. 3:30-5:15 Th. Mr. Waller.

156. INDUSTRIAL CURRICULA FOR SECONDARY SCHOOLS. I; 2-3 cr. Course making in specific subjects for given grade levels, and industrial curriculums in general and vocational education. Experimental laboratory work for third credit. 3:30-5:10 Th. Mr. Waller.

157. PART-TIME EDUCATION. II; 2-3 cr. 11 MW. Mr. Edgerton and others.

254. SEMINARY, VOCATIONAL AND INDUSTRIAL ARTS EDUCATION. Yr; 2 cr. 3:40-5:30 W. Mr. Edgerton.

EDUCATIONAL METHODS

STEPHEN MAXWELL COREY, Ph.D., *Professor of Education, Chairman*
JOZEF BIRKENMAJER, Ph.D., *Acting Professor of Polish*
VINCENT EARL KIVLIN, M.S., *Professor of Agricultural Education*
HAZEL MANNING, M.S., *Professor of Home Economics*
ROBERT O. ROESELER, Ph.D., *Professor of German*
JAMES HENRY WALTON, Ph.D., *Professor of Chemistry*
GLADYS LOUISE BORCHERS, Ph.D., *Associate Professor of Speech*
KATHERINE L. CRONIN, M.A., *Associate Professor of Physical Education*
IRA CLEVELAND DAVIS, M.A., *Associate Professor in the Teaching of Science*
CHESTER VERNE EASUM, Ph.D., *Associate Professor of History*
HERBERT PULSE EVANS, Ph.D., *Associate Professor of Mathematics*
GORDON N. MACKENZIE, Ed.D., *Associate Professor of Education and Director of Practice Teaching*
ROBERT NOHR, JR., G.G., B.P.E., *Associate Professor of Physical Education*
BURR WENDELL PHILLIPS, M.A., *Associate Professor in the Teaching of History* (on leave yr.)
ROBERT CECIL POOLEY, Ph.D., *Associate Professor in the Teaching of English*
JOE RUSSELL WHITAKER, Ph.D., *Associate Professor of Geography*
DELLA FORD WILSON, M.A., *Associate Professor of Art Education*
CALLA A. GUYLES, Ph.B., *Assistant Professor in the Teaching of Latin*
RUTH ADELE HENDERSON, M.A., *Assistant Professor in the Teaching of Home Economics*
IRENE ANITA HENSEY, M.S., *Assistant Professor of Accounting*
LAURA BUTLER JOHNSON, M.A., *Assistant Professor in the Teaching of French*
EDWARD ELGIN MILLIGAN, M.A., *Assistant Professor of French and Italian*
PAUL LEROY TRUMP, Ph.D., *Assistant Professor in the Teaching of Mathematics*
LYNDA MARGUERITE WEBER, M.A., *Assistant Professor in the Teaching of Biology*
MARGARET O. CLARK, *Instructor in the Teaching of Art*
RONALD BRYAN EDGERTON, B.A., *Instructor in the Teaching of History*
WILLIS DIETRICH FREITAG, B.S., *Instructor in Agricultural Education*
RUTH MARGARET JOHNSON, Ph.M., *Instructor in the Teaching of History*
HAROLD J. MORRISSEY, B.S., *Instructor in Agricultural Education*
MARION B. POWERS, M.A., *Instructor in the Teaching of Speech Correction*

Courses in this department are open to and *may be credited only by students who are registered in the School of Education* with a major or minor in the department concerned. *Education 75 and senior standing are prerequisites for these courses.* These regulations do not apply to Course 184 and 199.

26. METHODS IN REHABILITATION OF SPEECH. II; 3 cr. Particular reference to practice in the elementary and secondary schools. Prerequisite: Speech 24 or 25 and 185. Open only to majors in speech correction. 2:30 M, plus six hours lab. Miss Powers.

27. METHODS IN SPEECH READING FOR CHILDREN. I; 3 cr. Prerequisite: Speech 185. Open only to majors in speech correction. 2:30 MW, plus three hours lab. Miss Powers.

49. THE TEACHING OF POLISH. I; 2 or 5 cr. Practice teaching in Polish is not offered in the Wisconsin High School; however, those who elect this course are required to do participation-teaching in another subject. Not offered 1938-39. Mr. Birkenmajer.

50. THE TEACHING OF AGRICULTURE. I, II; 1-5 cr. 8 TT. Mr. Kivlin, Mr. Morrissey, Mr. Freitag.

52. THE TEACHING OF HOME ECONOMICS. I, II; 3 or 5 cr. 3:30 TT. Miss Henderson.

53. THE TEACHING OF CLOTHING CONSTRUCTION. I, II; 2 cr. Selection of illustrative material for clothing courses in secondary schools. Study of suitable material and patterns for high-school instruction. Reports and demonstrations. Required of all students who are preparing to teach clothing. Prerequisites: Home Economics 11 and 50 or consent of instructor. Lab. fee $4.50. 1:30-3:30 TT. Miss Manning.

62. THE TEACHING OF ART. I, II; 2 or 5 cr. Lectures 10 TT, plus lab. Miss Clark.

69. THE TEACHING OF PHYSICAL EDUCATION. I; 5 cr. Prerequisites: Physical Education 20, 42 and 43. (Not offered 1938-39; included in Education 3). Miss Cronin and others.

71. THE TEACHING OF BIOLOGY. II; 2 or 5 cr. 2:30 TT. Miss Weber.

72. THE TEACHING OF CHEMISTRY. II; 2 or 5 cr. Prerequisites: Chemistry 1; first semester of Chemistry 120, or credit or enrollment for five credits in Chemistry 11. 1:30 MW. Mr. Walton.

75. THE TEACHING OF BOOKKEEPING. II; 2 or 5 cr. Prerequisite: Commerce 9. Practice teaching in bookkeeping is not offered in the Wisconsin High School; however, those who elect this course are required to do participation-teaching in another subject. 2:30 TT. Miss Hensey.

76. THE TEACHING OF ENGLISH. II; 2 or 5 cr. Prerequisites: English 123 or 124, and senior standing. 3:30 MWF. Mr. Pooley.

81. THE TEACHING OF FRENCH, ITALIAN, AND SPANISH. I, II; 2 or 5 cr. 11 TT. Miss Johnson.

82. THE TEACHING OF GEOGRAPHY. II; 2 or 5 cr. Mr. Whitaker.

83. THE TEACHING OF GERMAN. II; 2 or 5 cr. For seniors and graduates. Graduate credit on special recommendation of the instructor. 2:30 MW. Mr. Roeseler.

84. THE TEACHING OF HISTORY AND THE SOCIAL STUDIES. I, II; 2 or 5 cr. (2 cr. for the minor; 5 cr., including three credits for participation-teaching, for the major.) 3:30 MWF. Miss Johnson, Mr. Edgerton.

90. THE TEACHING OF LATIN. I; 2 or 5 cr. 2:30 TT. Miss Guyles.

93. THE TEACHING OF MATHEMATICS. I; 2 or 5 cr. (Not offered 1938-39; included in Education 1, 2, and 3.)

97. THE TEACHING OF SCIENCE. I, II; 2 or 5 cr. 8 MWF. Mr. Davis.

156. THE TEACHING OF HOME ECONOMICS IN THE PART-TIME SCHOOL AND RURAL VOCATIONAL CENTERS. Yr; 2 cr. lect.; 2 cr. off-campus teaching. Prerequisites: Senior standing and Education 75. Miss Henderson.

158. ADVANCED COURSES IN HOME ECONOMICS EDUCATION. II; 2 cr. Prerequisite: Graduate standing or teaching experience. Time to be assigned. Miss Henderson.

184. PRACTICE TEACHING ON THE COLLEGE LEVEL. Yr; 2 cr. Prerequisite: Graduate assistantship in the department of the major. Mr. Easum, Mr. Evans, Mr. Milligan.

185. ADVANCED COURSE IN THE TEACHING OF HISTORY AND THE SOCIAL STUDIES. II; 2 cr. Prerequisite: Consent of instructor. 3:30-5:30 Tu. Not offered 1938-39. Mr. Phillips.

198. THE TEACHING OF SPEECH IN HIGH SCHOOL. I; 2 or 5 cr. A study of objectives and methods in speech education. 2:30-4:30 Th. Miss Borchers.

199. THE TEACHING OF SPEECH IN COLLEGE. II; 2 cr. Prerequisite: Graduate standing in speech. 2:30-4:30 Th. Miss Borchers.

PHYSICAL EDUCATION—MEN

GUY SUMNER LOWMAN, B.Di., B.P.E., M.P.E., *Professor of Physical Education, Chairman*
JAMES CLAUDE ELSOM, M.D., *Professor of Physical Education, Emeritus*
THOMAS EDWARD JONES, B.A., B.P.E., *Professor of Physical Education*
ARTHUR W. MANSFIELD, M.S., *Associate Professor of Physical Education*
ARPAD LOUIS MASLEY, G.G., *Associate Professor of Physical Education*
ROBERT NOHR, JR., G.G., B.P.E., *Associate Professor of Physical Education*
ROBERT J. FRANCIS, Ph.D., *Assistant Professor of Physical Education*
FRANK NICKERSON, *Assistant Professor of Physical Education*
RUSSELL RIPPE, M.S., *Assistant Professor of Physical Education*
ARTHUR J. THOMSEN, B.S., *Assistant Professor of Physical Education*
CLYDE KNAPP, B.S., *Instructor in Physical Education*
GEORGE MALOOF, M.D., *Instructor in Physical Education*

Courses 59, 159, and 164 may be elected for credit by students in the School of Education.

6. THEORY AND PRACTICE. I; 2 cr. History and principles of physical education and introductory physical training. Lab. fee $3.00. Staff.

7. THEORY AND PRACTICE. II; 2 cr. Tactics, calisthenics, and elementary apparatus; class instruction in minor sports and swimming. Lab. fee $3.00. Staff.

8. THEORY AND PRACTICE. I; 3 cr. Graded games, calisthenics, and nomenclature; football practice; basketball practice; minor sports. Lab. fee $3.00. Staff.

9. THEORY AND PRACTICE. II; 2 cr. Basketball theory; football theory; calisthenics, hand apparatus, and apparatus with methods of progression; track and field theory and practice; baseball practice. Lab. fee $3.00. Staff.

10. THEORY AND PRACTICE. I; 3 cr. Critical discussions; physical education for elementary and secondary schools, theory and practice; football practice; basketball practice; games of higher organization. Lab. fee $3.00. Staff.

11. THEORY AND PRACTICE. II; 3 cr. Physical education programs; baseball theory and practice; track and field practice; minor sports. Lab. fee $3.00. Staff.

12. THEORY AND PRACTICE. I; 3 cr. Athletic conditioning and training; advanced basketball and football theory; practice teaching; testing programs; improvement of personal proficiency in all phases of material. Lab. fee $3.00. Staff.

13. THEORY AND PRACTICE. II; 3 cr. Advanced physical education programs; theory and practice of gymnastic dancing, the study of rhythms, exhibitions and demonstrations; natural gymnastics, stunts, tumbling, and tests; advanced field and track theory; advanced baseball theory; life-saving and advanced swimming; practice teaching. Lab. fee $3.00. Staff.

NOTE: In exceptional cases, or in irregular schedules, Physical Education 8 to 13 inclusive may be offered for 2 or 4 credits, not to exceed a total of 21 credits for these theory and practice courses.

2. PHYSIOLOGY (Physical Education—Men). II; 4 cr. Prerequisite: Sophomore standing. Lab. fee $2.00. Dr. Maloof.

16. FIRST AID AND SAFETY EDUCATION. II; 2 cr. Care and treatment of injuries of an emergency nature caused by accidents in the home, school, street, playground, or vocational pursuit. A first-aid certificate is issued by the American Red Cross to all who complete the course satisfactorily. The material presented in safety education is designed to meet the general or special need of teachers who are required to teach safety in the secondary or elementary schools. The course will cover safety measures in the various fields. Mr. Masley.

17. ATHLETIC CONDITIONING AND TRAINING. I; 2 cr. Open only to physical education minors. Mr. Bakke.

39. HUMAN ANATOMY (Physical Education—Men). I; 4 cr. Prerequisite: Sophomore standing. Lab. fee $5.00. Dr. Maloof.

58. HUMAN MECHANICS. I; 2 cr. For men majoring or minoring in physical education. Prerequisite: Human anatomy. 8 TT. Mr. Nohr.

59. NATURE, FUNCTION, AND ORGANIZATION OF PLAY. I; 3 cr. Prerequisite: Psychology 1 or 3 credits in education. Mr. Lowman.

71. CAMP ADMINISTRATION AND SCOUTING. II; 3 cr. Prerequisite: Physical Education 59 or three credits in education or sociology. Mr. Masley, Mr. Thomsen.

80. COMMUNITY RECREATION. II; 2 cr. Prerequisite: Physical Education 59 or three credits in education or sociology. Mr. Lowman, Mr. Masley.

107. EFFECTS OF PHYSICAL ACTIVITIES ON THE BODY. I; 2 cr. Prerequisites: Physical Education 58, Physiology 2. Mr. Nohr.

119a. PHYSICAL EXAMINATIONS AND THERAPEUTICS. I; 3 cr. Prerequisites: Anatomy 39 Physiology 2. Mr. Francis.

119b. PHYSICAL EXAMINATIONS AND THERAPEUTICS. II; 3 cr. Prerequisite: Physical Education 118. 8 MWF. Mr. Francis.

130. TESTS AND MEASUREMENTS IN PHYSICAL EDUCATION. I; 2 cr. Prerequisite: Consent of instructor. 8 TT. Miss Glassow, Mr. Nohr.

159. PLAY, RECREATION, AND LEISURE-TIME PROBLEMS. I; 2 cr. Prerequisite: Physical Education 59 or consent of instructor. Mr. Lowman.

164. SCHOOL HEALTH AND HYGIENE. I; 4 cr. Prerequisites: Anatomy 39, Physiology 2. Mr. Francis.

166. ELECTRO-, ACTINO-, AND HYDRO-THERAPY. II; 2-3 cr. The theory and physics of the agents used in physical therapeutics. Intended for students of physical education, nurses, and physio-therapy aides. Prerequisites: Physics, anatomy, and physiology. 10 MWF. (Will not be offered after 1938-39). Dr. Boynton.

168. ORGANIZATION AND ADMINISTRATION OF PHYSICAL EDUCATION. II; 2 cr. Prerequisites: Physical Education 12 and 59. 11 TT. Mr. Lowman, Mr. Knapp.

263. ADVANCED THERAPEUTIC GYMNASTICS. II; 2 cr. Especially qualified students may arrange for research in corrective gymnastics and physical therapy. Prerequisite: Physical Education 119b or 166. Mr. Francis.

291. PROBLEMS IN ORGANIZATION, TEACHING, AND ADAPTATION. II; 2 cr. Prerequisite: Physical Education 168 or Education 3. 11 MWF. Mr. Lowman.

293. SEMINARY ON RESEARCH STUDIES IN PHYSICAL EDUCATION. Yr; 2-4 cr. Mr. Lowman, Mr. Francis.

TEACHERS' COURSE

EDUCATION 1-4. THEORY AND PRACTICE OF TEACHING. Yr; 3-5 cr. (Physical Education—Men.) A continuous course of four semesters integrating theory, special methods, and practice in education, fulfilling all requirements for the University Teachers' Certificate except a three-credit elective in the Department of Education. Course 1 (3 credits. Fee $ .50.), Course 2 (5 credits. Fee $ .50.), Course 3 (4 credits), and Course 4 (3 credits). Registration must begin with Education 1. Prerequisite: Junior standing, or consent of instructor.

PHYSICAL EDUCATION—WOMEN

BLANCHE MATHILDE TRILLING, B.A., *Professor of Physical Education, Chairman*
GLADYS BARTON BASSETT, M.A., *Associate Professor of Physical Education*
MARGARET H'DOUBLER-CLAXTON, M.A., *Associate Professor of Physical Education*

KATHERINE L. CRONIN, M.A., *Associate Professor of Physical Education*
HELEN DOBSON DENNISTON, M.D., *Associate Professor of Physical Education*
RUTH B. GLASSOW, M.A., *Associate Professor of Physical Education*
FRANCES SCOTT BRADLEY, B.S., *Instructor in Physical Education*
MARION BROER, M.S., *Instructor in Physical Education*
KATHERINE REDD DUBIELZIG, B.S., *Instructor in Physical Education*
ELIZABETH GRIMM, M.S., *Instructor in Physical Education*
VIRGINIA LEE HORNE, M.S., *Instructor in Physical Education*
BEATRICE HELLEBRANDT, M.S., *Instructor in Physical Education*
MARGARET H. MEYER, M.S., *Instructor in Physical Education*
MARGUERITE M. SCHWARZ, M.S., *Instructor in Physical Education*

Starred (★) courses are open only to students majoring in physical education. Other courses are open to students in the School of Education (up to four credits) by consent of instructor.

★20. PRACTICE IN DANCING, GYMNASTICS, AND SPORTS. Yr; 0-2 cr. per term. Main stress is on developing students' motor skills. Instruction in nomenclature, elementary organization of materials, practice in leading sections and squads, and assisting in college classes. Includes dance technique and electives in golf, horseback riding, bowling, outdoor baseball, tennis, archery, basketball, hockey, stunts, and tumbling gymnastics. Staff.

31. SPORT TECHNIQUES. II; 1-2 cr. Baseball, archery, tennis. Analysis of rules and techniques; positions and team play; care of equipment. Practice in coaching and officiating. Staff.

32. SPORT TECHNIQUES. I; 1-2 cr. Field hockey, basketball. Analysis of rules and techniques; positions and team play; care of equipment. Practice in coaching and officiating. Staff.

33. SPORT TECHNIQUES. II; 1-2 cr. Track—analysis of rules and techniques; different methods of teaching; construction of grounds; equipment; adaptability of players to different positions; opportunity for coaching and officiating. Swimming—teaching methods, selection and care of equipment, recreational swimming, administration of program, classification and testing methods, beginning and advanced diving, organization and administration of competitive swimming. Staff.

42. THEORY AND PRACTICE OF PLAY. I; 2 cr. Practice in and analysis of values of various types in developing motor skills and social habits; the meaning of play and its significance in child development and in adult life; the significance of leisure in the world of today and the responsibility of the school in preparing people to use it well. Miss Cronin.

43. RHYTHM AND ELEMENTARY DANCE FORMS. A. II; 1-2 cr. A study of rhythmic form and analysis and its application to simple dance forms. Practice of graded singing games, clog and tap dances, and folk dances suitable for grades and junior high school. Work on a special project, taking one country and making a study of its history, art, music, and folk lore as background for its folk dancing. A final demonstration of class and original work in clog and tap dancing. Miss Bassett.

49. RHYTHM AND ELEMENTARY DANCE FORMS. B. II; 1 cr. Advanced forms of folk dancing emphasizing the ability to use source material. Rhythmic analysis of tap dancing. Prerequisite: Consent of instructor. Mrs. Bradley.

56. KINESIOLOGY. I; 3 cr. Principles of body mechanics; principles underlying techniques in sport skills and common activities; classification of musculature involved in these sport skills and activities. Prerequisites: Anatomy 36 or 120. Miss Glassow.

60. RHYTHMIC FORM AND ANALYSIS. I; 1-2 cr. The analysis of rhythmical elements in movement and their application to dance. The aim is to teach how to express feeling, to teach a method of analysis, and to train the student in accuracy of perceiving form, thus providing her with a vocabulary of movement and an intelligent mastery of the factors as a foundation for the more deliberate act of composition. A basic course for teachers of all ages and of all levels of ability. Prerequisites: Major in Physical Education, or consent of instructor. Miss H'Doubler, Mrs. Bradley.

69. THE TEACHING OF PHYSICAL EDUCATION (Educational Methods 69). I; 2 or 5 cr. May substitute for *Education 3*. Setting up standards for good teaching of physical education. Principles of selection, progression, and adaptation of motor activities to individuals and groups. Practice teaching in two age levels. Prerequisites: P.E. 20, 42, and 43. Not offered 1938-39. Miss Cronin and others.

81. CAMP LEADERSHIP. II; 2 cr. A consideration of the educational philosophy of camping. Aims to equip the counselor with information and practice in camp organization, program making, and all camp activities. Laboratory work includes at least one week-end trip. Special lectures are given on stars, music, nature work, etc. Prerequisites: Sophomore standing and consent of instructor. Fee $2.00.

130. TESTS AND MEASUREMENTS. I; 2 cr. Standards for evaluating tests in physical education; review of statistics employed; critical survey of tests for elementary and secondary schools, and for college men and women, in specific activities such as baseball, basketball, hockey, soccer, volleyball, rhythm, posture, swimming, golf, tennis. Tests for general motor ability. Miss Glassow.

133. ACCOMPANIMENT FOR CONTEMPORARY DANCE. Yr; 2-3 cr. Elements of music, historical survey of the relation of music to dance, modern experimental trends in accompaniment, use and technique of playing percussion instruments and composition applied to elementary, secondary school, and college levels. Instructing the accompanist. The choice of music for classwork. Prerequisite: Consent of instructor. Miss Hellebrandt.

146. THEORY AND PHILOSOPHY OF DANCE. II; 2-3 cr. A classification of the true meaning of dance, its justification as an educational and creative art medium, its place in the school curriculum, a theory of art technique. Consideration of dance in a changing world. Prerequisite: Dance major or consent of instructor. Miss H'Doubler.

160. ADVANCED RHYTHMIC FORM AND ANALYSIS. II; 2 cr. A continuation and expansion of the content of P.E. 60 into more advanced problems with some stress on the teaching of rhythmic factors. Prerequisite: P.E. 60. Miss H'Doubler, Mrs. Bradley.

165. DANCE COMPOSITION. I; 2-3 cr. Theory and practice. Approaches to content in dance at different age levels. The elements of form including movement, rhythmic, spacial and compositional factors. Progression from

elementary studies to a-b-a forms, rondo, theme and variations, canon, old dance forms and functional dance forms. Prerequisites: Dance major or consent of instructor. Miss Hellebrandt.

168. Organization and Administration of Physical Education. I; 2-3 cr. The problems of the administrator and supervisor; administrative policies of physical education departments in schools and colleges; finances; construction, equipment and care of plant; selection, appointment, and supervision of staff; organization and administration of activities; classes; teams, etc.; enrollment, classification, handling of records and reports; discussions; local, sectional, and national organizations. Prerequisite: Senior standing in physical education course or consent of instructor. Miss Trilling.

174. Supervision in Physical Education. II; 2 cr. The duties of the supervisor, planning the supervisory program, evaluation of rating techniques. Practice in observing and evaluating teaching, in devising observation techniques. Of value to instructors in teacher training institutions and to city supervisors. Prerequisites: Consent of instructor. Miss Cronin.

175. Therapeutic Gymnastics. I; 2 cr. Theory and practice of massage and passive exercises, of the use of therapeutic gymnastics as a means of treatment of cardiac, respiratory, abdominal, pelvic and nervous cases; extremes of weight; first aid in physical activity emergencies. Prerequisite: Anatomy 36 or 120. Mrs. Denniston.

176. Therapeutic Gymnastics. II; 2 cr. Physical examinations; methods of measuring and testing the body. Anthropometric methods, their place and value; determination of normal and abnormal variations. Adaptation of methods of exercise to the development of the individual; correction of abnormal variations. Use of special gymnastic appliances. Prerequisites: P.E. 56, 36, or 120, and 175. Mrs. Denniston.

177. Advanced Therapeutic Gymnastics. I; 2-3 cr. Muscle re-education in walking and other forms of mechano-therapy; pathology of those forms of paralysis, neuritis, arthritis, and myopathies which are treated by physical therapy. Practice in Wisconsin General Hospital, Orthopedic Hospital for Children, and public school for crippled children. Prerequisites: P.E. 175 and 176. (Will not be offered after 1938-39.) Mrs. Denniston, Miss Lewis.

*180. Topical Work. Yr; **cr. Analysis of thesis writing. Study of problems involved in evaluating papers and problems. Assigned topics for reading, conference, and report. Staff.

*181. Thesis Course in the Dance. Yr; **cr. An historical survey of the cultural background of dance in various civilizations with special emphasis on the relation of social structure to the existing dance forms. Prerequisite: Dance major or consent of instructor. Miss H'Doubler.

198. Health Education in the Schools. II; 2 cr. The work of the teacher in health education: (a) a brief survey of the teacher's background of sanitary science; (b) the health knowledges, attitudes and habits of children in the primary and secondary schools; (c) health education programs and examinations; (d) health education material and methods. Mrs. Denniston.

*200. RESEARCH IN PHYSICAL EDUCATION. Yr; cr to be arranged. Staff.

262. RESEARCH IN TESTS AND MEASUREMENTS. Yr; cr. to be arranged. Course is arranged to permit individual and group studies adapted to the interests of those enrolled. Prerequisite: P.E. 130 or 230. Miss Glassow.

265. SEMINARY IN DANCE DRAMA. II; 2 cr. The study of the problems of program building and of production. Actual experience is given in composing, casting, directing, and costuming, as well as studying the problems of publicity and expenses generally attendant upon production. Prerequisite: P.E. 165. Miss H'Doubler.

*292. SEMINARY IN ADMINISTRATION. Yr; cr. to be arranged. Scope and problems of administration of a modern plant. Each student traces one phase of administration as a class problem. Review of current literature. Prerequisites: P.E. 168, Education 1, 2, 3, and 4, and consent of instructor. Miss Trilling.

TEACHERS' COURSE

The Teaching of Physical Education. See Education 1, 2, 3, 4, page 426.

Other courses in physical education open to women are listed under Physical Education for Men; they include 16, 59, 71, 80, 159, 164, 166, 293.

For courses in motor learning, physical development and child psychology, see Educational Psychology and Child Development, pages 429-432; for courses in supervision, see page 427.

See also bulletins of the School of Music and of the Medical School for subjects required of physical education students.

(Additional elective courses are offered in the summer school, descriptions of which may be found in the bulletins of the Summer Session.)

PART VI—THE GRADUATE SCHOOL

E. B. Fred, Dean

ORGANIZATION, AIMS AND METHODS

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. It is the aim of the University to offer 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.

The work of the Graduate School is under the general direction of the Graduate Faculty. The Dean of the Graduate School is charged with general supervision of all graduate students and is the medium of communication between such students and the university administration.

The Graduate School aims to serve the needs of men and women of college training or equivalent attainment who desire a larger and more thorough acquaintanceship with the scholarship and research of the world than can be obtained in the current undergraduate course. In all departments of the Graduate School special emphasis is laid upon bringing the graduate student into contact with the research problems of his field of study. To this end able students share in the investigations of their instructors and are encouraged to acquire the spirit, as well as the methods of productive work. Provision has been made by the University for the publication of the results of especially meritorious work of this kind and doctors' theses of more than common merit are often thus published; summaries of all Doctor of Philosophy theses are published each year.

Improved programs have been put in force for students entering the Graduate School in February for study during the second semester. Many persons find it possible to enter on leave of absence at that time, in some cases on full or part pay from their institutions. The Graduate School desires to facilitate plans of this kind and will be glad to cooperate in formulating and carrying them out.

ADMISSION

Admission to the Graduate School is based upon the undergraduate record. In order to avoid delays incident to the opening of the session, an applicant for admission should send to the Graduate Office several weeks in advance of his coming, a complete, official transcript of his undergraduate record and also of any graduate work he may have done. An official transcript from each school attended is necessary. Each record should be listed chronologically by semesters showing hours per week, weeks per semester, and grades received; and one record should include a notation of the high-school record. Transcripts of students who register for graduate work become a permanent part of the university files and may not be returned.

Graduates of the University of Wisconsin with an average of 1.5 grade-points per credit will be admitted to full standing upon application. Those with a grade-point average between 1.25 and 1.5 may be admitted on proba-

tion for a trial period of at least one semester before they may become candidates for an advanced degree. Wisconsin graduates may obtain permits to register in the Graduate School by writing directly to the Graduate Office.

Graduates of other institutions fully approved by the Association of American Universities and the various regional accrediting agencies, or of other institutions maintaining standards and degree requirements similar to those of the University of Wisconsin, will be admitted upon the following terms:

a. The same grade-point average is required of students from other institutions as is required of graduates at the University of Wisconsin (see above).

b. For full admission a student must have had at least 70 credits of academic work outside of his major. If the record does not show this number, he must make them up before he may be allowed to become a candidate for a degree.

c. Correspondence or extension work is not credited toward admission to the Graduate School unless it has been taken at the University of Wisconsin or at the institution from which the student was graduated. All such work will be checked closely to see that it is done on a basis similar to that of extension work done at the University of Wisconsin.

d. A complete official transcript of the undergraduate work must be submitted. One transcript from each college attended is necessary.

Seniors in the University of Wisconsin who are within six credits of graduation and who have the required grade-point average may be admitted to the Graduate School by obtaining a certified statement to that effect from the office of the Registrar. A senior registered for graduate credit may not drop a course without the approval of his major professor and the dean of his college.

Under certain conditions, a student in the College of Letters and Science or the School of Education who has completed his first four semesters at the University of Wisconsin with an average point-credit ratio of at least 2.6 may be permitted to pursue special studies with a view to being admitted to the Graduate School at the close of his seventh semester as a candidate for the master's degree in one additional semester. The detailed regulations are contained in the general announcement of the College of Letters and Science.

CANDIDACY FOR DEGREES IN THE GRADUATE SCHOOL

Admission to the Graduate School does not of itself imply admission to candidacy for an advanced degree. Admission to candidacy is determined only after a student has shown that he is qualified to pursue graduate study successfully.

The student's major department cannot in any way change requirements for admission to the Graduate School but, subject to the approval of the Administrative Committee, may set up further specific requirements.

The nature of the student's undergraduate course will determine the specific master's degree for which he may become a candidate. Evaluation will be made to determine which of the various first degrees of the University of Wisconsin the student's work most closely approximates. In cases of wide divergence from the requirement for any one of the degrees of the University

of Wisconsin, a student may be required to do additional work as prescribed by the Administrative Committee.

The Graduate School is especially interested in students of outstanding ability. For this reason, the Administrative Committee is authorized to modify requirements in the case of students whose records indicate exceptional qualifications for graduate work.

"Members of the faculty of the University of Wisconsin above the rank of instructor may not take a degree in course at the University of Wisconsin. This rule does not apply to members of the faculties of the Agricultural Extension Service and the University Extension Division working for the master's degree."

REGISTRATION

A permit to register in the Graduate School will be mailed to students who submit transcripts several weeks prior to the registration date. These permits should be presented in person on registration days at the Graduate Office, Room 150, Bascom Hall. Students will not be allowed to register unless transcripts are sent in advance.

FEES AND EXPENSES

For detailed statement see section on Student Expense, beginning page 13. In general graduate students are required during the regular year to pay the same fees as are undergraduates, with the following exceptions: (a) instructors, and graduate teaching and research assistants are exempt from laboratory fees taken in the department in which they hold appointments, and, unless otherwise specified in the appointment, from the non-resident tuition* (b) fellows and scholars are exempt from the non-resident tuition and from laboratory fees in courses taken either in the department in which they hold appointments or in the department in which they major; (c) honorary fellows and honorary scholars are exempt from the non-resident tuition and from the incidental fee of $12; honorary fellows, in addition to these exemptions, are exempt from payment of laboratory fees; (d) members of the teaching and research staff of the University not designated above, members of the State Geological and Natural History Survey, members of the technical staff of the Forest Products Laboratory, staff members of the United States Department of Agriculture stationed at the University and engaged in research, technical experts employed in any department of the state government, and officers of the United States Army detailed as students by proper authority are exempt from non-resident tuition fee. The registration, physical education, infirmary and Union fees are required of all students.

When any candidate for a Ph.D. degree holding an appointment listed in the preceding paragraph shall have paid to the University as a graduate student seven semester or summer session fees, he shall be exempt from further payment of the incidental portion of the general fee but not from the registration, physical education, infirmary or Union fees, in both the regular and the summer sessions, *as long as he shall continue to hold such official appointment.* In the administration of this rule, one but only one, nine-week summer session fee or its equivalent may be counted as two of the seven fees above mentioned; also the full amount of any prescribed fee shall be charged. A maximum of two semesters may be credited from other schools as two of the seven fees.

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

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

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

RESEARCH FUND

The State Legislature has provided a sum of money for the promotion of research in the University. In addition, the Wisconsin Alumni Research Foundation has provided funds for the support of research in the natural sciences. These funds vary from year to year. The President of the University has appointed a University Research Committee to receive information concerning projects of research for which special aid is needed and for which adequate funds are not now available from any other source.

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 Sigma Xi, Language and Literature Club, French Club, Political Science Club, German Club, Italian Club, Mathematical Club, Mining Club, Spanish Club, University of Wisconsin Branches of the American Institute of Civil Engineers, Electrical Engineers, Mining and Mechanical Engineers, Wisconsin Section of the American Chemical Society, University of Wisconsin Section of the American Electro-Chemical Society.

The Graduate Club, while sharing in these purposes, is primarily a social organization for the promotion of acquaintance and good fellowship among graduate students and members of the faculty.

The University Club, a local organization of college alumni, maintains a well-equipped clubhouse near the university grounds, and the privileges of this house, including its lodging and restaurant facilities, are open to graduate students, who may become associate members of the club.

The College Women's Club maintains a clubhouse, at 12 East Gilman Street, where facilities are available to all women graduate students.

UNIVERSITY PUBLICATIONS

See page 6

SUMMER SESSION WORK

There is a summer session of nine weeks in the Graduate School, especially designed to enable graduate students to make substantial progress toward a higher degree during the summer months. The time is sufficient for conducting graduate seminars and for carrying out important plans for study and research in the various laboratories and libraries of the University.

The courses and seminars are planned for the first four days of the week, leaving Friday and Saturday free for intensive library and laboratory work. Arrangements can also be made for extending the period of residence to ten, eleven, or twelve weeks *if the student has already spent a period of actual residence in the Graduate School of the University of Wisconsin* and *if the written consent of the major professor is obtained.* Application forms for extra-session registration may be obtained at the Graduate Office.

The nine-week session in the Graduate School is a separate and distinct session from the general summer session of six weeks, which is open to undergraduates and graduates.

Two courses pursued for nine weeks constitute full credit for the work of one-half semester. One six-week course and one nine-week course may also be offered for full credit, provided arrangement is made with the professor concerned for extra work during the last three weeks of the nine-week course. This permits any six-week graduate course to be associated with any nine-week course for full half-semester residence credit. No nine-week course, however, may be taken for the six weeks only. Two six-week courses constitute full residence for one-third of a semester.

See page 485 for statement of fees and expenses in the summer session.

FELLOWSHIPS AND SCHOLARSHIPS

FELLOWSHIPS

For the promotion of scholarship and research the Regents of the University have authorized various fellowships and scholarships in the Graduate School. Many of these are on a permanent basis, while others, particularly industrial fellowships, are established for a limited time only. All fellowships and scholarships will be filled each year unless the special funds supporting them are insufficient. Fellows may be reappointed for one year only. Men and women are equally eligible except where the donor has decreed otherwise. The following fellowships are offered:

UNIVERSITY FELLOWSHIPS. Established by the Regents of the University, these number 48 and pay $600 a year. Some of them permit holders to work in any field in the University; others are assigned for work in particular departments or colleges, as follows:

COLLEGE OF LETTERS AND SCIENCE (24)

Botany	1	Mathematics	1
Chemistry	1	Philosophy	1
Classics	1	Physics	1
Comparative Literature	1	Political Science	1
Economics	3	Psychology	1
French and Italian	1	Sociology	2
Geography	1	Spanish	1
Geology	1	Speech	1
German	1	Zoology	1
History	3		

COLLEGE OF AGRICULTURE (12)

Agricultural Bacteriology	1	Home Economics	1
Agricultural Chemistry	1	Plant Pathology	1
Agricultural Economics	1	Unassigned	6
Genetics	1		

COLLEGE OF ENGINEERING 2

SCHOOL OF EDUCATION (3)

Teaching Majors	2
Department of Education	1

ALL UNIVERSITY

(Open to all departments in all colleges)	7

Each fellow shall pursue his studies under the direction of the professor or professors in charge of his special work. Assignment of university services to the fellows shall be made by the president in consultation with the head of the department; and the work assigned may be equivalent to one hour of teaching daily or the supervision of laboratory work for two hours daily.

WISCONSIN ALUMNI RESEARCH FOUNDATION FELLOWSHIPS IN THE NATURAL SCIENCES. This foundation has generously given funds for ten to fifteen fellowships in the natural sciences. Candidates for these awards must be "young men and women of exceptional talent and originality." A candidate may not apply directly for these fellowships but must be nominated by a professor well acquainted with the candidate's qualifications. Most of these fellowships are for second-year graduate work and may be renewed for an additional year. Recipients devote their full time to research and course work. The yearly stipend is $600.

ADAMS FELLOWSHIPS. The will of Charles Kendall Adams, formerly president of the University, conveyed the larger part of his estate to the Regents of the University for the foundation of fellowships. There are two Mary M. Adams Fellowships in English language and literature, two Charles Kendall Adams Fellowships in Greek, and two President Adams Fellowships in history. Each pays annually, depending on the yield of the investment, between $400 and $600.

LYMAN COPELAND DRAPER FELLOWSHIP IN WESTERN HISTORY. The Wisconsin Historical Society established this fellowship, to which appointments are made when the funds of the Society warrant it—not necessarily every year. The holder of the fellowship receives $500 a year and devotes fifteen hours per school week to the calendaring of the Draper manuscripts.

ANNIE GORHAM FELLOWSHIP. The late Annie Gorham Marston bequeathed to the Regents of the University a sum of money the income from which is to be used for a fellowship open to any graduate student. This fellowship pays approximately $400 a year, according to the yield of the investment.

HARRIET REMINGTON LAIRD FELLOWSHIP (FOR WOMEN). The late John M. Olin established, in memory of Harriet Remington Laird, sister of Mrs. Olin, a fund of $10,000, the net income from which is awarded to some woman graduate student as a fellowship stipend. The amount varies from $400 to $600 annually, according to the current yield of the investment.

ALBERT MARKHAM MEMORIAL TRAVELING FELLOWSHIP IN LANGUAGE AND LITERATURE. This fellowship which is open only to holders of the Ph.D. degree, is offered annually in the division of Language and Literature. The appointee, who receives approximately $600 (occasionally this may be increased to $1,000), is expected to spend the year in foreign travel and study at a foreign university, though special permission may be granted for study at some other American university.

CHARLES E. MENDENHALL FELLOWSHIP IN PHYSICS. Friends of the late C. E. Mendenhall have subscribed a fund to support a fellowship open to graduate students in experimental physics. About $100 is awarded annually to enable a student to carry on work over the summer.

CHARLES R. VAN HISE FELLOWSHIP IN GEOLOGY. A memorial to the late Charles R. Van Hise, formerly president of the University, this fellowship is awarded at irregular intervals for work in Geology. The stipend, about $500, varies according to the funds available.

JULIUS ZEHNTER FELLOWSHIP IN GERMAN. Open to graduate students who have had at least one year of graduate work and are candidates for the Ph.D. degree, this fellowship yields the annual income from an investment of $10,000 (at present about $400). No teaching is required, but a small amount of departmental service is expected.

ALBERT H. HOLLISTER FELLOWSHIP IN PHARMACY. A fund now amounting to $10,328 was bequeathed by Mr. and Mrs. Albert H. Hollister for a fellowship in pharmacy. This pays approximately $400 per annum, according to the yield of the investment.

RESEARCH FELLOWSHIPS IN ENGINEERING. For the training of research men in engineering the University has established three fellowships. Appointment is for two years, subject to satisfactory service, and the salary is $750 for the first year, $900 for the second. Candidates must be graduates of engineering colleges of recognized standing, preferably with one or two years' graduate study or teaching or engineering experience. The fellow will be required to devote not less than half his time during the academic year, including the short vacations, to assigned research in the College of Engineering, but will be given opportunity to complete work for the M.S. degree during the two-year period.

INDUSTRIAL FELLOWSHIPS. A number of industrial concerns have established fellowships totaling about thirty which are usually given to graduate students who have completed a large part of their work for the Ph.D. degree at the University of Wisconsin. In some instances the type of research work is specified, but in others no restrictions are imposed regarding the problem to be investigated. In most cases the research deals with fundamental problems and hence the results may be accepted as a thesis for an advanced degree. Stipends vary according to the funds given by the industries.

SCHOLARSHIPS

UNIVERSITY SCHOLARSHIPS. Established by the Regents, these are twenty-three in number and have an annual value of $250 each.

By special provision the faculties of Beloit, Carroll, Lawrence, Milton, Milwaukee-Downer, and Ripon Colleges, and Marquette University have authority to nominate one member each from each of their respective senior classes for these scholarships. The other sixteen are assigned for work in departments as follows:

COLLEGE OF LETTERS AND SCIENCE

Economics	2	Sociology	1
History	2	Unassigned (open to all departments)	8
Political Science	1		

COLLEGE OF AGRICULTURE

(Open to all departments) 2

WISCONSIN ALUMNI RESEARCH FOUNDATION SCHOLARSHIPS IN THE NATURAL SCIENCES. These scholarships, twenty-five in number, are similar to the Wisconsin Alumni Research Foundation Fellowships except that they carry a stipend of $400. Holders are not required to begin their research until the second semester; the first semester may be devoted entirely to course work.

WISCONSIN SCHOLARSHIPS. There have been established in the Graduate School ten Wisconsin scholarships, available only to distinctly superior University of Wisconsin graduates who are candidates for the advanced degrees. Appointment is made for one year with a stipend of $400 for the period.

MARTHA L. EDWARDS SCHOLARSHIP IN HISTORY (FOR WOMEN). From a fund established in memory of the late Professor Martha L. Edwards by members of her family and the Madison Branch of the American Association of University Women small scholarships may be awarded by the Department of History to women graduate students in history for the purpose of advancing their doctoral dissertations.

THE TORGER THOMPSON GRADUATE SCHOLARSHIP. This scholarship, which pays $300, is open to a student who will carry at least one graduate course in Scandinavian languages each semester of his tenure of the scholarship.

TRIPP SCHOLARSHIPS FOR RESIDENTS OF SAUK COUNTY. These three scholarships, founded by the late J. Stephens Tripp, and paying $200 annually, are open to undergraduate and graduate students who are residents of Sauk County.

SCHOLARSHIPS IN GERMAN. The Henry Gund Graduate Scholarship in German Literature, open to any graduate student majoring in German, yields about $200 and requires a small amount of departmental service. There are three of these scholarships available.

GERMAN HOUSE SCHOLARSHIPS. Paying up to $250 a year, may be granted from the National Teachers' Seminary Fund to permit deserving students who would otherwise be unable to do so, to have room or board or both at the German House.

THE HOARD MEMORIAL SCHOLARSHIP. A memorial to the late W. D. Hoard, formerly governor of the State of Wisconsin, this scholarship is awarded at irregular intervals for work in dairy production, dairy manufacture, dairy marketing, or dairy journalism. The stipend, about $500, varies according to the funds available.

The accumulated interest from the JULIA STERN FUND may from time to time be applied to the support of a graduate student from the German Department studying abroad.

HOME ECONOMICS SCHOLARSHIPS. The Wisconsin chapter of Omicron Nu offers a yearly scholarship open to either graduate or undergraduate students in Home Economics. It pays from $150 to $200 a year.

THE DOROTHY ROBERTS MEMORIAL FUND SCHOLARSHIP is granted to a graduate student interested in child training and nursery school work. It amounts to about $200 a year.

THE STATE SERVICE SCHOLARSHIPS. The Regents may grant to qualified students of exceptional merit who have been recommended by the department of their major subject, during the last academic year required for any degree in

the University, a loan of not more than $400. The borrower promises to serve the state for a year or two as an apprentice in a position previously determined by the state director of personnel and to repay the loan during this period.

OTHER APPOINTMENTS

NON-RESIDENT SCHOLARSHIPS (50). These scholarships, which remit the non-resident tuition fee of $100 a semester, are available to graduate students who are not residents of Wisconsin. Candidates should apply to the Dean of the Graduate School for application forms, and should transmit to that office transcripts of their undergraduate and graduate work (if any) as well as letters of recommendation.

HONORARY FELLOWSHIPS AND SCHOLARSHIPS. These have been made available by the Regents to persons who have already held academic honors (fellowships and research or teaching appointments) and to professors from other colleges and universities. No stipend is attached to these positions except remission of the non-resident tuition fee and of the incidental portion ($12) of the general semester fee ($27.50); no teaching is required. The candidate must be sponsored by some member of the University faculty.

TEACHING AND RESEARCH ASSISTANTSHIPS. A large number of teaching and research assistantships are available in various departments of the University. The salary depends upon the amount of time devoted to teaching or to research, but is usually not less than $600 for the academic year. The amount of residence credit allowed toward a degree likewise varies with the amount of time available for graduate work.

For information concerning these positions, the applicant should write directly to the chairman of the department in which he is interested.

RESEARCH ASSISTANTSHIPS IN THE FOREST PRODUCTS LABORATORY. In accordance with the regulations of the United States Civil Service Commission, a limited number of students who show unusual ability in research may be appointed as student research assistants by the Forest Service and Bureau of Plant Industry. The entire time of the student is given to lecture or class work in the University and to research in the Forest Products Laboratory. The salary varies from $200 to $480 a year. Laboratory fees are remitted for work in the Forest Products Laboratory and the non-resident tuition fee is remitted.

Continuation of the assistanships will depend largely upon the funds available. Applications for these positions with supporting evidence of scholarship and research promise should be sent to the Directory of the Forest Products Laboratory, Madison, Wisconsin, on or before February 15th of the academic year preceding that during which the appointment is desired.

PROCEDURE OF APPLICATION

APPLICATION FORMS for fellowships and scholarships may be secured from the Graduate School Office, Bascom Hall, Madison, Wisconsin.

All applications should be sent, as directed on the particular form, to the Dean of the Graduate School or to the chairman of the department in which the candidate wishes to major. Applications must be filed before February 15th of the scholastic year preceding that for which appointment is desired. They must be accompanied by *complete official transcripts* (a separate one for each institution attended) and by letters of recommendation and a small dated photograph.

Copies of published or unpublished writings of the applicant, records of distinctions, and other supporting information will be helpful. If accompanied by the necessary postage, material submitted will be returned to applicants who are not granted appointments. An unsuccessful applicant who wishes to apply for admission to the Graduate School should re-submit his transcript to the Graduate School Office.

In accordance with the regulations of the Association of American Universities, appointments will be made on April 1. Candidates receiving notification of appointment should make their decision as early as possible.

All fellows and scholars, with the exception of honorary fellows and scholars, are required to pay the general fee of $27.50 a semester, but are exempt from the non-resident tuition fee of $100 a semester.

Information not included in this bulletin may be secured by wiring to E. B. Fred, Dean of the Graduate School.

SECOND DEGREES

NON-PROFESSIONAL DEGREES. The University of Wisconsin confers the following non-professional second degrees: Master of Arts, Master of Science. Master of Philosophy.

These degrees are conferred, in accordance with the conditions set forth below, upon graduates of the University of Wisconsin and upon graduates of other institutions of learning whose preliminary training has been substantially equivalent to that represented by the baccalaureate degrees of the University of Wisconsin. The University will determine this substantial equivalence of training 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 the 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, is conferred upon candidates whose undergraduate work corresponds to that now leading to the degree, Bachelor of Science, as conferred by the University of Wisconsin, and may also be conferred upon holders of the degree of Bachelor of Arts who are adequately trained in mathematical, chemical, physical, or biological science. The degree, Master of Philosophy, is conferred upon candidates whose academic training corresponds to that leading to the degree, Bachelor of Philosophy, as conferred by the University of Wisconsin.

Candidacy for the above degrees is based upon resident study at the University. The minimum residence requirement for the master's degree is one full year or its equivalent in summer sessions. No correspondence or extension work is credited toward an advanced degree at this University except in special cases in the Department of Education.

The following regulations for the attainment of second degrees apply to all candidates in residence:

1. During a period of at least one academic year the candidate must pursue a course of graduate study characterized by definiteness of purpose and approved by the University as appropriate to that purpose and suitable in amount. At least half of the graduate work must lie in a single department. The undergraduate preparation of the candidate must be sufficient to satisfy the instructor

that the advanced work may be profitably undertaken. 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 Dean of the Graduate School be obtained in advance.

2. Students who, during their candidacy for a second degree, are engaged in teaching, or other remunerated employment, will be required to devote to their studies such period longer than one year as may be designated by the Administrative Committee.

3. The candidate must pass an oral examination upon the preliminary training and graduate work offered in support of his candidacy. The time and place of this examination will be determined and the examining committee appointed by the Dean of the Graduate School.

4. For students seeking to specialize in a definite line of study the preparation of a thesis may be required and, subject to the approval of the professor in charge, such thesis work may be elected by others. A thesis offered in partial fulfillment of the requirement for a master's degree must be typewritten and bound according to specifications furnished by the Librarian of the University, and before it is accepted must be approved by the major professor under whose guidance it has been done. It shall be deposited in the University Library on or before the second Friday before Commencement, and its title, as approved in advance by the major professor, will appear in the Commencement Register.

5. When graduate work at other institutions is offered for transfer toward a master's degree, only complete semesters or quarters will be counted.

Second Degree in Music. Superior graduates of reputable four-year courses leading to a bachelor's degree in music may be candidates for the second degree of Master of Music even though they do not satisfy the non-music academic requirements of our B.M. degree.

Second Degree in Public Health. The degree of Master of Public Health will be conferred upon graduates of approved medical colleges who satisfactorily complete one year of graduate work in sciences related to public health. For a detailed statement regarding this degree application may be made to the Dean of the Medical School.

The Degree of Master of Science in Social Work is granted to students upon completion of certain academic and professional training requirements.

Second Degree for Students in Professional Colleges. Graduates of approved institutions who are regularly enrolled in the professional colleges of this University may supplement their professional studies by work taken in the Graduate School. Upon the completion of an approved course of study they will be admitted to examination for the master's degree, to be conferred at the time of their graduation.

DOCTOR OF PHILOSOPHY

I. The Degree. Doctor of Philosophy is a research degree. It is not a degree conferred solely as a result of study, no matter how faithful, extending over any prescribed period; it does not rest merely upon any computation of time or any enumeration of courses. Questions of residence and plans of study,

listed below as the minimum, are secondary. The granting of the degree is based essentially upon evidence of general proficiency and of distinctive attainments in a special field, and particularly upon the recognized power of independent investigation as shown by the production of a thesis embodying original research or creative scholarship and presented with a fair degree of literary skill.

II. RESIDENCE. Candidacy for the degree is based upon resident graduate study normally extending over a period of not less than three academic years, at least three semesters of which must be spent at this University. But it is to be understood that the mere completion of three years of resident study does not itself confer a right to take the final examination. The matter of time is determined by the character of a student's undergraduate record and by the quality of the work done in the Graduate School.

One whose undergraduate work is insufficient in amount or too narrowly specialized must count on spending additional time in preliminary studies essential as a basis for the advanced work the student purposes to undertake.

Candidates who are engaged in teaching or in other remunerated employment will be required to devote to their candidacy such period in excess of the minimum requirement of three years as may be designated by the Administrative Committee. It is suggested as a very desirable consideration that every candidate for the degree should arrange to devote at least one year exclusively to graduate study.

Residence as a graduate student in another institution of approved standing will be accepted at the University, but residence elsewhere will not reduce the minimum of three semesters of residence in this University. In evaluating the time spent and work done elsewhere each case will be determined on its merits.

Work done *in absentia* in past years and credited for the degree of Master of Arts will not shorten the residence requirement for the degree of Doctor of Philosophy in case a student becomes a candidate for that degree. No *absentia* or correspondence work is now credited toward an advanced degree.

In order to give the work of a graduate student greater breadth, a student may be granted absence from the University to do special investigation in the field or to take advantage of opportunities for research in a special subject not to be found in the University. Such leave of absence is granted only in special cases and under definite limitations.

III. LANGUAGES. A reading knowledge of both French and German is required of all candidates. Certificates of ability to read French and German must be secured from the departments of French and German in this University and must be filed with the Dean of the Graduate School before the candidate is admitted to the preliminary examination. Certificates of such reading knowledge from other institutions are not accepted at the University of Wisconsin. In special cases the Administrative Committee, upon the recommendation of the major department, may allow the candidate to substitute for one of the required foreign languages some other foreign language which can be shown to be more useful in the candidate's professional research.

IV. PLANS OF STUDY. The degree of Doctor of Philosophy is never granted for miscellaneous studies. The course as a whole must be rationally unified, and all constituent parts must contribute to some general object of study and research. The course must be selected from groups embracing one principal subject, called the major, and one or two subsidiary and cognate branches, called the minor.

MAJOR STUDY. A candidate is required to select a field of study which may be co-extensive with the work of a single department, or with one of the "subjects" under which certain departmental plans of courses are arranged or which may be constructed from two closely interrelated subjects. Only in the exceptional case will a major be allowed to extend beyond a single department and then only with the prior approval of the Dean.

MINOR STUDIES. Supplementary to his major study, a candidate is required to take a minimum of either ten or twelve credits in graduate courses (in the 100 or 200 groups) in fields other than that of his major. The courses are to be selected to form a coherent group. The requirement may be met according to Option A or B. Each candidate must pass tests set up in the case of Option A by the department or departments, and in the case of Option B, by the committee.

Option A. A minimum of ten credits in courses within a single department, or a minimum of twelve credits divided between two departments, the courses to be prescribed by the minor department or departments.

Option B. A minimum of twelve credits in more than one department in courses stipulated by a special committee of three or more members including the major professor. The Dean of the Graduate School will appoint the committee. Before the courses are taken the chairman will inform the Graduate School Office of the courses selected and of the method to be followed in testing the candidate.

It is understood that the individual divisions and the departments not affiliated with divisions may prescribe higher regulations than are herein specified.

MAJOR PROFFESSOR. One of the instructors in the department of the major is selected by the student as his major professor. The candidate will consult the major professor in the selection and arrangement of a program of work embracing both the major and minor fields. The major professor will have immediate supervision of the thesis. The candidate should consult with the major professor at suitable intervals. It is one of the unique advantages of graduate life that a student comes into freedom of association with older scholars who will seek to make his work profitable by counsel and assistance and who will aid the student in acquiring for himself the discipline and method of independent scholarship.

DEPARTMENTS AND DIVISIONS. The work of the Graduate School as a whole is organized not only according to departments, but also according to divisions, each of which includes allied departments. The requirements fixed by a department or a division cannot be stated in terms at once specific and uniform. Information about the special requirements of departments or divisions is to be found in their separate announcements.

V. ADMISSION TO CANDIDACY. A student is not permitted to take the final examination for the degree until he has been formally admitted to candidacy by passing a preliminary qualifying test. A student must satisfy the reading knowledge requirement in French and German before he is allowed to take the preliminary examination. The preliminary examination must be taken not less than one academic year in advance of the date when the degree is expected to be conferred. Exceptions to this rule may be made in individual cases upon recommendation of a division to the Administrative Committee.

When the preliminary examinations have been passed, the candidate shall file with the Dean a formal application to be admitted to candidacy for the doctor's degree. A blank form suitable for this purpose is furnished by the Graduate School Office, and this formal application should embrace the following statements: (a) Departmental recommendations of candidacy based upon a formal written examination, or an oral examination before a duly appointed committee, or such other substantial test as the departments may elect. The nature of the test shall be stated in the recommendations. (b) The scope of the proposed minors with the approval of the professor who assumes charge of each minor. (c) The title of the proposed thesis (subject to future change) approved by the major professor.

This application shall be submitted to the Administrative Committee, which may reject it for cause, or may approve it and admit the student to candidacy. With reference to time requirements imposed by the University, the Administrative Committee may specify the earliest permissible date for the final oral examination.

VI. Final Oral Examination. The degree Doctor of Philosophy is not granted for faithful study for a prescribed time or in fulfillment of a definite program, but on the ground of long study and distinct attainment in a special branch of knowledge manifested by a final examination and by the presentation of a thesis which gives evidence of original treatment of a fitting subject and forms a contribution to knowledge.

Every candidate for the doctor's degree is subject to an oral examination upon the thesis and the general field of the major and minor studies, but the preliminary examination may be construed as final in certain aspects of the major and minor subjects if the professors in charge of the candidate's work are satisfied with his perparation. Such delimitation of the subjects to be offered in the final examination must be made a matter of record with the Dean of the Graduate School.

The Dean of the Graduate School will appoint for each candidate an examining committee, usually composed of five persons, with the major professor as chairman. The time and place of the examination, to be arranged by the major professor, must be filed in the Graduate School Office at least one week in advance of the examination. The candidate's completed thesis shall be presented to this committee, or in lieu thereof, the major professor shall state to the committee its purpose and scope and shall certify to the committee that the work upon the thesis is substantially completed. This examination shall be open to all members of the Graduate Faculty.

VII. Thesis. At any time after admission to candidacy, and at least thirty days prior to the final examination, the candidate must submit to the Dean of the Graduate School, for approval of its mechanical form and execution, two typewritten copies of his completed thesis—one original and one duplicate copy. The Dean will furnish an official title page for the thesis and appoint a committee of three consisting of the major professor and two members of the Graduate Faculty, to pass upon its substantial merit; their report, if favorable, shall be endorsed upon the official title page. In case of divided opinion among the examiners, the case shall be referred to the Administrative Committee with right of appeal to the Graduate Faculty. If approved, both copies of the thesis and one copy of the summary shall then be filed in the University Library.

Thesis Summary. Since the University is to publish the summaries of all Doctor of Philosophy theses, the Editorial Board of the Graduate School feels

that it is desirable to examine these summaries and if necessary make editorial changes and suggestions covering such matters as grammar, punctuation, paragraphing, clarity and completeness of statement, arrangement of the material, and general effectiveness of presentation. Accordingly, the candidate is to bring to the Graduate Office for such examination a typewritten tentative draft of the summary.

Detailed information concerning the formal requirements for the summary will be sent to each candidate.

THESIS PUBLICATION FEE. All successful candidates for the doctorate shall pay a non-refundable thesis summary publication fee of $10, with the understanding that the fund so collected each year will be used in the prompt publication of a volume of summaries, the length and character of these summaries to be determined by the Dean of the Graduate School.

If the thesis is printed, six copies should be sent to the University Library and one copy to the Graduate Office for filing.

PART VII—EXTENSION DIVISION

(EXTRA-MURAL COLLEGE)

F. O. Holt, Dean

John L. Bergstresser, Assistant Dean

Of the three main functions of a commonwealth university—(1) residence instruction, (2) research, and (3) the dissemination of the useful and assimilable knowledge which has been accumulated through productive scholarship, to all classes of citizens and in forms adapted to their requirements to stimulate intellectual curiosity and inquiry coupled with the desire to know and to understand —the third is fulfilled in an organized way by the Extension Division.

This Division constitutes the extra-mural college of the University, and is therefore one of the seven coordinate major divisions of the University with a dean and a faculty. The work of the Division is divided into three departments as follows: Extension Teaching, Debating and Public Discussion, Public Service.

The object of this University in carrying on extension work is to provide the highest type of intellectual stimulus and continuing education feasible for the citizens of the commonwealth who are unable to attend established educational institutions, and to give every one in the State the opportunity to obtain the highest education possible at the smallest practicable expense—to bring the University and the home into close relationship.

DEPARTMENT OF EXTENSION TEACHING

Arthur Beatty, Ph.D., *Professor of English*
Benjamin George Elliott, M.S., M.E., *Professor of Mechanical Engineering*
Henry Rowland English, M.A., *Professor of Business Administration*
Cyril Methodius Jansky, B.A., B.S., *Professor of Electrical Engineering*
Ann Maria Pitman, Ph.D., *Professor of Greek and Latin*
Harry E. Pulver, C.E., *Professor of Civil Engineering*
Edward Bunker Schlatter, Ph.D., *Professor of Romance Languages*
Lelia Bascom, M.A., *Associate Professor of English*
Lester Frank Brumm, M.S., *Associate Professor of Accounting*
Roy Jefferson Colbert, Ph.D., *Associate Professor of Economics and Sociology*
Frank Dougall Crane, Ph.D., *Professor of English*
Adolphine Bianca Ernst, Ph.D., *Associate Professor of German*
Charles Lyman Dean, B.S., *Assistant Professor of Mechanical Engineering*
Lewis Ethelbert Drake, Ph.D., *Assistant Professor of Psychology*
Bessie Eva Edsall, Ph.M., *Assistant Professor of History*
Russell Winslow Fowler, M.S., *Assistant Professor of Drawing*
Ida Marie Gangstad, B.A., *Assistant Professor of Library Methods*
Harriette Grace Holt, M.A., *Assistant Professor of Mathematics*
Mrs. Bernice Donnolly Kuney, M.A., *Assistant Professor of English*
Leonard Folsom Hillis, M.S., *Assistant Professor of Civil and Structural Engineering*
J. Murray Lee, Ph.D., *Assistant Professor of Education*
James Kenneth Little, Ph.D., *Assistant Professor of Education*
Ralph Alan McCanse, M.A., *Assistant Professor of English*

HOWARD MCMURRAY, B.A., *Assistant Professor of Political Science*
JAMES HERBERT MARCH, M.B.A., C.P.A., *Assistant Professor of Accounting*
JOHN LESTER MILLER, Ph.M., *Assistant Professor of Economics and Sociology*
JAMES STRONG PARKER, B.A., M.B.A., *Assistant Professor of Economics* (on leave yr.).
MRS. AMY HOYT SMITH, M.A., *Recorder*
LEON BATTIG, M.A., *Instructor in Mathematics*
THEODORE WILLIAM BAUER, Ph.D., *Instructor in History*
ROBERT MANLEY DUNCAN, Ph.D., *Instructor in Spanish and French*
JOHN KENNETH EVERS, Ph.M., *Instructor in English*
SAMUEL ICHIYE HAYAKAWA, Ph.D., *Instructor in English*
PAUL WILLIAM ICKE, Ph.M., *Instructor in Geography*
NORMAN MANTONYA KASTLER, M.A., *Instructor in Economics and Sociology*
MARGARET ISABEL KNOWLES, Ph.D., *Instructor in History*
MANFORD HINSHAW KUHN, M.A., *Instructor in Sociology*
KATHERINE WAY MCMULLEN, M.A., *Instructor in English*
ALBERT EMIL MAY, Ph.D., *Instructor in Mathematics*
MARGARET ISABEL POPE, Ph.D., *Instructor in English*
MRS. JOSEPHINE WHEELER RENTZ, M.A., *Instructor in Spanish*
HARMON BROSS STEPHENS, B.A., *Instructor in Economics and Sociology*
CHLOE ELIZABETH TILDEN, M.A., *Instructor in French, German, and Spanish*
KATHRIN MARIE TUFTS, M.A., *Instructor in Spanish*
THOMAS HARRY WILLIAMS, Ph.D., *Instructor in History*
ZEA ZINN, Ph.D., *Instructor in English*

CORRESPONDENCE STUDY

For the needs of those who are unable to adjust themselves to the formal system of education, special forms of consecutive home-study courses have been developed by the Department of Extension Teaching. This department offers individual instruction adapted to the special needs of students who cannot come into residence study at the University. The instruction given may be undertaken in the leisure hours of each student at his own home.

PLAN AND SCOPE

The University of Wisconsin provides, through the Department of Extension Teaching, non-residence or home-study instruction by correspondence, as follows:

1. Certain regular university studies which may, under approved conditions, be taken for credit toward a degree.

2. Advanced courses designed to help persons—graduates and others—in professional or practical life to keep in touch with the advancement in science and in other fields of knowledge.

3. High-school and preparatory studies for those to whom the conventional institutions are not available or practicable.

4. Elementary and grammar school studies for those who require such instruction for practical or personal purposes.

5. Vocational courses prepared with reference to the needs and requirements of given occupations.

6. Guided study outlines for program material to aid various organizations in their associated or club or group study and discussion work.

GENERAL BENEFITS

Persons who are benefited by correspondence study may be grouped into two main divisions: (a) those who have the taste, ability, and inclination to continue their education, whether general or vocational, (b) wage-earners who cannot leave their employment in order to acquire training directed toward greater proficiency and skill.

The first division may be roughly subdivided into (1) those who wish to keep abreast of the advances in knowledge related to their profession or business, or who wish to continue study purely for purposes of general culture benefits and the enjoyment of the intellectual pleasures that accompany the sense of mastery of knowledge and the attainment of understanding, (2) those who wish to earn units of credit toward a university degree, and (3) those who require preparation for entrance to the University.

The second division includes (1) those whom the necessity of earning a livelihood has taken from school before acquiring a satisfactory elementary education; (2) those who have had the benefit of more or less liberal educational opportunities but have received no training especially adapted to fit them for their chosen vocations; and (3) those who desire to change vocations and prepare themselves for employment more nearly adapted to their tastes and abilities.

All courses offered through correspondence study, whether taken for university credit or not, are on a standardized basis in reference to the amount of work covered. Courses which are satisfactorily completed have, therefore, definite value, and all students who successfully complete such courses will be awarded statements or certificates indicative of the character of the work done.

METHOD

PROCEDURE. The student who wishes to undertake correspondence study should first select such course or courses as he may desire to take. He should then fill out the application blank with information called for, and return it, with the required fee, to the office of the Extension Division. The necessary textbooks, outfits, etc., may be purchased through the Extension Division if the student so desires. Ordering texts at the time of registration saves time and facilitates a prompt start. Students are encouraged to register for but one course at a time. Not more than two courses may be registered for at one time unless the student can give evidence that he has at least several hours each day to devote to study.

THE INSTRUCTION. Upon receipt of the application and fee, the first group of assignments will be sent with instructions for study, methods of preparation, and directions for returning recitation sheets and reports. Each recitation report will be returned to the student with such corrections, explanations, and suggestions as may be needed. Lists of books, assignments for reading, and all necessary assistance will be furnished throughout the course, so that no student will be left without adequate aid and guidance. Questions on the subject in hand are at all times encouraged.

BY WHOM PREPARED. These courses are prepared by the members of the university faculty, and each represents a definite amount of work equivalent to

similar work done in residence at the University, or in schools of known standards.

THE UNIT COURSE. The unit course is divided, where practicable, into forty weekly assignments. Such a course represents at least an amount of work equal to that done in residence at the University in a study of five recitation hours a week for one semester or half year. It is assumed that this work may be done by the average student in forty weeks on a minimum leisure for study of one hour a day, six days in the week. It is, however, the student's privilege to pursue his studies as rapidly as may be consistent with good work and the rules of the University.

THE LESSON ASSIGNMENT. The unit course is divided into assignments. In some courses this may call for but a single report, but in others the assignment may be divided into two or more lessons. In all cases the assignment represents an average week's work, and not an evening's work, as at school.

PERMANENCE. The department endeavors to make its work thorough and permanent, and the various courses have been arranged, wherever that is desirable, in coordination with the regular residence work, the short courses, and the summer session.

EXAMINATIONS. Examinations are optional with the student, but are required where credits or certificates are sought. These examinations must be taken at the University, or under supervised conditions approved by the University.

REGULATIONS. 1. Students may begin correspondence-study courses at any time during the year.

2. For admission to a correspondence-study course no preliminary examination is required. The student is required to fill out an application blank, giving such information as may be helpful to the instructor in adapting the instruction to his personal needs.

3. Students who undertake correspondence-study work for university credit must state this fact in advance and comply with all the requirements of the University.

4. For the benefit of the department it is desired that the applicant state fully the purpose he has in view in taking the work and also in detail such educational advantages, training, or experience as he may have had. The department endeavors to meet the needs of the individual student by advice and suggestion, as well as by formal instruction, but whenever it finds that the course elected is not for the best interest of the student, it reserves the right to reject the application, or to advise a change to another course.

5. The time in which a correspondence-study course is to be completed varies with the length of the course. One year is allowed for a course of twenty-four assignments or less, fifteen months for a course of from twenty-five to thirty-two assignments, and eighteen months for a course of from thirty-three to forty assignments. The fee for reinstatement in a course not completed within the established time limit is two dollars except in cases where suspension of instruction has been granted for cause, and the time limit extended.

6. Payment of fees in full is expected at the time of registration. In un-

usual circumstances arrangements can be made for the partial payment of instruction fees of $10 and over. Such arrangements include the filling out of an application form giving certain information, and the payment of a small additional fee. No fee is refunded because a student cannot begin or carry on a course for which he has once registered. If an application for instruction is rejected, the fee is returned.

7. The instruction fee for university credit courses is five dollars per credit for students who are legal residents of the state of Wisconsin. For students not legal residents of the state of Wisconsin, the fee is eight dollars per credit. For courses not involving university credit, corresponding fees prevail. The expense connected with the instruction of each course is listed in the bulletins where these courses are announced. These fees are deliberately put upon the lowest operating basis.

UNIVERSITY CREDIT

1. Persons who have had the required preparation for admission to the University will, upon the satisfactory completion of a correspondence-study course designed for credit, have their grades permanently filed in the Recorder's office until the student has satisfactorily completed one year of study in residence. When all the requirements are satisfied, the correspondence-study records may be transferred to the Registrar's office and applied toward graduation.

2. The maximum credit granted for work done by correspondence study, however, may not exceed one-half the number of credit hours required for graduation.

3. At the completion of each correspondence-study course for university credit, the student shall pass an examination held under the direction of the instructor giving such course, or supervised by some one designated by the University for that purpose.

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

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

6. In special cases credit may be allowed for correspondence-study courses of preparatory grade to satisfy partial entrance requirements to the University.

Course Number	Title of Course	No. of Assignments	Credits	Tuition in Wisconsin	Tuition outside Wisconsin	Course No. of Residence Equivalent
ASTRONOMY						
1	Elementary Astronomy	24	3	15	24	
10	Elementry descriptive astronomy	16		10	16	
BOTANY						
130	Identification and classification of seed plants	16 or 32	2 or 4	$10 or $20	$16 or $32	130
1	General botany	40	5	25	40	1
110	Plant histology	24	3	15	24	110
111	Microscopical examination of drugs and foods	24	3	15	24	111
131	Dendrology	16 or 24	2 or 3	10 or 15	16 or 24	131
21	Elementary botany	32		20	32	
BUSINESS						
128	Introductory principles of accounting	24		15	24	
138	Intermediate accounting I	16		10	16	
139	Intermediate accounting II	16		10	16	
136	Cost accounting I	16		10	16	
140	Cost accounting II	16		10	16	
144	Governmental accounting	16		10	16	
145	Advanced accounting problems	24		15	24	
146	Analysis of financial reports	16		10	16	
147	Auditing	16		10	16	
162	Business finance	24		15	24	
169	Investments	16		10	16	
168	Practical banking procedure	16		10	16	
102	Business correspondence I	12		7.50	12	
103	Business correspondence II	12		7.50	12	
106	Report writing	12		7.50	12	
120	The law of contracts and agency	16		10	16	
121	The law of business transactions	16		10	16	
122	The law of business organization	12		7.50	12	
161	Property insurance	16		10	16	
165	Life insurance fundamentals	16		10	16	
166	Life insurance salesmanship	16		10	16	
150	Business organization and management	16		10	16	
151	Personnel management	16		10	16	
153	Marketing methods	24		15	24	
154	Principles of advertising	16		10	16	
155	Retail advertising	16		10	16	
156	Marketing management	16		10	16	
157	Salesmanship	12		7.50	12	
159	Retail selling	16		10	16	
180	Real estate fundamentals	24		15	24	
104	Secretarial training	12		7.50	12	
105	Filing and indexing	12		7.50	12	
118	Secretarial bookkeeping	12		7.50	12	
171	Business statistics	24		15	24	
CHEMISTRY						
1a	General chemistry	40	5	25	40	1a
1b	General chemistry	40	5	25	40	1b
117	Advanced general chemistry	32	4	20	32	117
COMPARATIVE LITERATURE						
67A	Modern drama	16	2	10	16	67
67B	Modern drama	16	2	10	16	67
113	Ancient classical drama in English	16 or 24	2 or 3	10 or 15	16 or 24	

Course Number	Title of Course	No. of Assignments	Credits	Tuition in Wisconsin	Tuition outside Wisconsin	Course No. of Residence Equivalent
118	Classical mythology in literature	16	2	10	16	
16	Modern short story	16	2	10	16	
68A	Modern novel	16	2	10	16	68
68B	Modern novel	16	2	10	16	68
DRAWING						
203	Shop sketching	16		10.75	16.75	
203S	Freehand industrial sketching	16		10.25	16.25	
204A	Shop drawing	20		16	21	
204B	Advanced shop drawing	20		15	20	
205	Sheet metal drafting	10		8	10	
206S	Elements of graphic statics	10		7.50	10	
243A	Principles of architectural drawing	16		10	16	
243B	Advanced architectural drawing	10		10	16	
1	Elements of drawing	24	3	15	24	1
2	Elements of drawing	24	3	15	24	2
3	Descriptive geometry	24	3	15	24	3
4	Freehand lettering	16	2	10	16	7
5	Show-card writing	10		10	15	
4A	Engineering lettering	6		5	8	
ECONOMICS						
1a	General economics	32	4	20	32	1a
1b	General economics	32	4	20	32	1b
122	Labor problems	24	3	15	24	122
135	Railway transportation	24	3	15	24	135
105	Money and banking	24	3	15	24	105
50	Practical economics	16		10	16	
52	Problems in taxation, Part I	8		5	8	
	Part II (In preparation)					
57	Unemployment compensation and old age annuities	8		5	8	
EDUCATION						
31	Principles of secondary education	24	3	15	24	31
101	History of modern European education	24	3	15	24	101
103	History of American education	24	3	15	24	103
109	Modern systems of psychology and education	24	3	15	24	109
112A	Social development and education	16	2	10	16	112
120	The psychology of adolescence	24	3	15	24	120
136	Foundations of method	16	2	10	16	136
137	Educational tests	16	2	10	16	137
193	Introduction to educational supervision	16	2	10	16	193
212	Statistical method applied to education and psychology	24	3	15	24	211 in pt.
41	Psychology and the new education	24		15	24	
143	The psychology of individual differences and the measurement of intelligence	24	3	15	24	143
144	Psychology of learning	24	3	15	24	144
20A	The teaching of language in the intermediate and grammar grades and in the rural schools	16	2	10	16	
20B	The teaching of literature and reading in the elementary and rural schools	16	2	10	16	

Course Number	Title of Course	No. of Assignments	Credits	Tuition in Wisconsin	Tuition outside Wisconsin	Course No. of Residence Equivalent
93	The teaching of secondary mathematics	16	2	10	16	93
180	Principles of educational and vocational guidance	16	2	10	16	180
181	Vocational and educational guidance techniques	16	2	10	16	181
ENGINEERING—CIVIL AND STRUCTURAL						
401C	Blueprint reading (civil and structural)	8		5	8	
401M	Blueprint reading (mechanical)	8		5	8	
404	Civil and structural engineering drawing	12		8	12	
408	Essentials of structural theory Part A	16		10	16	
409	Essentials of structural theory Part B	16		10	16	
410	Roof trusses	12		7.50	12	
411	Plate girders	12		7.50	12	
412A	Bridge stresses—uniform loads	16		10	16	
412B	Bridge stresses—concentrated loads	16		10	16	
413	Design of railway bridge trusses	16		10	16	
418A	Reinforced concrete fundamentals	24		15	24	
418B	Reinforced concrete retaining walls and buildings	24		15	24	
418C	Reinforced concrete bridges	24		15	24	
421	Steel building design	16		10	16	
425	Deflections of structures and stresses in redundant members of trusses	8		5	8	
430	Plain concrete construction	8		5	8	
472	Materials of construction	12		8	12	
496	Estimating construction costs	20		14	20	
441A	Elementary surveying	10		7	10	
441B	Advanced surveying	10		7	10	
442	Highway surveying	12		8	12	
521	Construction of water supply systems	8		5	8	
511	Construction of sewers	8		5	8	
481	Practical hydraulics	24		15	24	
483	Advanced hydraulics	8		5	8	
445	Railway curves	16		10	16	
501	Roads and pavements	16		10	16	
1	Railway engineering	16	2†	10	16	Ry. 1
2	Hydraulics	24	3	15	24	Hyd. 2
115	Hydraulics, motors and pumps	8	1	5	8	Hyd. 115
2	Stresses in simple structures	32	4	20	32	Str. 2
3	Design of roof trusses and plate girders	24	3	15	24	Str. 3
4	Design of railway bridge trusses	16	2	10	16	Str. 4
105	Principles of reinforced concrete	24	3	15	24	Str. 105
106	Concrete arches	16	2	10	16	Str. 106
111	Reinforced concrete buildings	16	2	10	16	Str. 111
1T	Elementary surveying	8	1	5	8	T. E. 1
2T	Elementary surveying	8	1	5	8	T. E. 2
3T	Land surveying	12	1½	7.50	12	T. E. 3
104T	Advanced surveying	12	1½	7.50	12	T. E. 104
108T	General surveying	16	2	10	16	T. E. 108
ENGINEERING—ELECTRICAL						

†After completion of field requirements.

Course Number	Title of Course	No. of Assignments	Credits	Tuition in Wisconsin	Tuition outside Wisconsin	Course No. of Residence Equivalent
311	Theory and operation of direct-current machinery	20		12	20	
312	Theory of alternating currents	20		12	20	
313	Alternating-current machinery	24	3	15	24	7
314	Electric lamps and illumination	20		12	20	
315	Practical alternating currents	20		12	20	
316	Central electric stations	20		12	20	
317	Electric power transmission	24	3	15	24	137 in pt.
318	Telephony—subscribers' apparatus	10		6	10	
319	Commercial electrical measuring instruments	24		15	24	
319A	Watthour meters	12		8	12	
322	Storage batteries	14		10	14	
324	Electric wiring	20		12	20	
327	Essentials of electricity	20		12	15	
328	Practical radio	20		10	16	
330	Electrical engineering mathematics	30	3	20	30	†
340	Fundamentals of electrical engineering	32	4	20	32	E.E. 1
341	Principles of direct-current machines	32	4	20	32	2
343	Principles of alternating currents	32	4	20	32	3
344	Principles of alternating-current machinery	32	4	20	32	4
346	Transient electrical phenomena	16	2	10	16	
	ENGINEERING—MECHANICAL					
75	The operation and application of the slide rule	5		3 50	5	
201A	Shop arithmetic	20		11	21	
201B	Advanced shop mathematics	20		11	21	
206	Elements of mechanics	20		15	20	
207	Strength of materials	24		15	24	
208	Mechanism	12		10	15	
1	Machine design	32	4	20	32	M. D. 1
209	Elementary machine design	16		15	20	
214	Elementary steam engineering	16		10	20	
215	Heat	16		10	16	
230A	Heat power engineering	32	4	20	32	S. and G. 1
230B	Heat power engineering	32	4	20	32	S. and G. 2
216	Steam boilers	24		15	24	
217	Steam engines	20		15	20	
218	Aeronautics	24		15	24	
218C	Meteorology and air navigation	16		15	20	
219D	The gasoline automobile					
	Part 1. The automobile engine	12		6	12	
	Part 2. Automobile electrical equipment	10		5	10	
	Part 3. The automobile chassis	10		5	10	
220	Diesel engines	20		18	23	
222	Refrigeration	24	3	15	24	
223	Heating and ventilation	24	3	15	24	
235	Elementary plumbing	20		16	20	
241	Carpenters' and builders' arithmetic	16		10	15	
242	The properties and uses of wood	12		10	15	
242A	Kiln drying of lumber	10		10	15	
272	Cupola practice	7		5	10	
274	Foundry metallurgy	9		10	15	

†Equivalent arranged by instructor.

Course Number	Title of Course	No. of Assignments	Credits	Tuition in Wisconsin	Tuition outside Wisconsin	Course No. of Residence Equivalent
ENGLISH AND COMPARATIVE LITERATURE						
9	Elementary English	24		12	24	
	Part A	12		6	12	
	Part B	12		6	12	
10	English grammar	24		12	15	
11	Better English	40		24	30	
	Part A	20		12	15	
	Part B	20		12	15	
12	Practical English review	10		5	10	
13	First-year high-school English	40		25	30	
14	Second-year high-school English	40		25	30	
15	Third-year high-school English	40		25	30	
16	Fourth-year high-school English	40		25	30	
1a	English composition	24	3	15	24	1a
1b	English composition	24	3	15	24	1b
88	Composition of technical papers	16	2	10	16	
88A	Composition of technical papers	8		5	8	
2a	Advanced composition	16	2	10	16	2a
2b	Advanced composition	16	2	10	16	2b
37a	Shakespeare	24	3	15	24	37a
37b	Shakespeare	24	3	15	24	37b
7A	Narrative writing	16	2	10	16	7
7B	Narrative writing	16	2	10	16	7
30a	General survey of English literature	24	3	15	24	30a
30b	General survey of English literature	24	3	15	24	30b
33a	Introduction to English literature	16	2	10	16	33a
33b	Introduction to English literature	16	2	10	16	33b
34	The Romantic movement	24	3	15	24	34
141	The poetry of Tennyson	16	2	10	16	141
145	The poetry of Browning	16	2	10	16	145
39b	The English novel in the nineteenth century	24	3	15	24	39 in pt.
40a	Gen'l survey of American literature	16	2	10	16	40a
40b	Gen'l survey of American literature	16	2	10	16	40b
76a	The teaching of composition	16	2	10	16	76
76b	The teaching of reading and literature	16	2	10	16	76
20A	The teaching of language in the intermediate and grammar grades and in the rural schools	16	2	10	16	
20B	The teaching of literature and reading in the elementary and rural schools	16	2	10	16	
67A	Modern drama (See Comparative Literature)					
67B	Modern drama (See Comparative Literature)					
113	Ancient classical drama in English (See Comparative Literature)					
118	Classical mythology in literature (See Comparative Literature)					
16	Modern short story (See Comparative Literature)					
68A	Modern novel (See Comparative Literature)					
68B	Modern novel (See Comparative Literature)					

Course Number	Title of Course	No. of Assignments	Credits	Tuition in Wisconsin	Tuition outside Wisconsin	Course No. of Residence Equivalent
FRENCH						
1a	Elementary French	32	4	20	32	1a
1b	Elementary French	32	4	20	32	1b
10a	Intermediate French	24	3	15	24	10a
10b	Intermediate French	24	3	15	24	10b
15	Elementary composition	16	2	10	16	15
16	Intermediate composition	16	2	10	16	16
124	Advanced composition	16	2	10	16	124
123	Modern French dramatists	16, 24, 32	2, 3, 4	10, 15, 20	16, 24, 32	123
136	Modern French novelists	16, 24, 32	2, 3, 4	10, 15, 20	16, 24, 32	136
131	General survey of French literature	24	3	15	24	131
21	(Special) Advanced reading	16 or 24	2 or 3	10 or 15	16 or 24	21a
21a	Elementary survey	24	3	15	24	21a
21b	Elementary survey	24	3	15	24	21b
GEOLOGY AND GEOGRAPHY						3 cr.—5
1	Physiography	24 or 40	3 or 5	15 or 25	24 or 40	5 cr.—1
2	General geology	24	3	15	24	Geol. 2 in pt. Geol. 1 in pt.
6	Commercial geography	24	3	15	24	3
101	Geography of Europe	24	3	15	24	101
GERMAN						
1a	First-semester German	32	4	20	32	1a
1b	Second-semester German	32	4	20	32	1b
1HS	First-year high-school German	40		20	32	
2	Elementary German review	16		10	16	
2a	Third-semester German	24 or 32	3 or 4	15 or 20	24 or 32	2a
2b	Fourth-semester German	24 or 32	3 or 4	15 or 20	24 or 32	2b
2HS	Second-year high-school German	40		20	32	
3HS	Third-year high-school German	32		20	32	
4HS	Fourth-year high-school German	32		20	32	
5a	Elementary composition	16	2	10	16	
19	Scientific German	16, 24, 32	2, 3, 4	10, 15, 20	16, 24, 32	19
16	Prose reading for graduates	16, 24, 32		10, 15, 20	16, 24, 32	16
10	Intermediate composition and conversation	16, 24, 32	2, 3, 4	10, 15, 20	16, 24, 32	10
80	Supervised individual reading	16 or 24	2 or 3	10 or 15	16 or 24	80
82	The teaching of German in elementary schools	8		5	8	
83	The teaching of German	16 or 32	2 or 4	10 or 20	16 or 32	83
17	Modern German drama	16, 24, 32	2, 3, 4	10, 15, 20	16, 24, 32	17
18	Modern German novel	16, 24, 32	2, 3, 4	10, 15, 20	16, 24, 32	18
15	Schiller and Goethe	16 or 24	2 or 3	10 or 15	16 or 24	15(I)
32	The Classical Period	24 or 32	3 or 4	15 or 20	24 or 32	32
34	Contemporary literature	24	3	15	24	34
130	Goethe's Faust	24 or 48	3 or 6	15 or 30	24 or 48	130
131	Survey of German literature	48	6	30	48	131
	Part A	24	3	15	24	
	Part B	24	3	15	24	
150	History of the German language	16	2	10	16	150
400	Beginning German	10		5	8	
410	Intermediate German	10		5	8	
412	Advanced German	10		5	8	
GREEK						
1	Elementary Greek	40	5	25	30	1
1A	Elementary Greek—Pharr's Homeric Greek	32	4	20	25	1

Course Number	Title of Course	No. of Assignments	Credits	Tuition in Wisconsin	Tuition outside Wisconsin	Course No. of Residence Equivalent
1S	Elementary Greek	16	2	10	12.50	
2	Xenophon's Anabasis	24	3	15	20	7(I)
7	Reading course in Herodotus	24	3	15	20	7(II)
3	Homer: The Iliad	24	3	15	20	10
6	Advanced prose composition	16 or 32	2 or 4	10 or 20	16 or 32	110
5	Elementary composition	16	2	10	16	
113	Ancient classical drama in English	16 or 24	2 or 3	10 or 15	16 or 24	
118	Classical mythology in literature	16	2	10	16	
HEALTH						
6	Prevention of disease and home care of the sick	8		4	8	
HISTORY						
51	United States history	20		10	15	
52	United States history	20		10	15	
87	Modern European history	20		10	15	
88	Modern European history	20		10	15	
4a	History of the United States 1760-1830	24	3	15	24	4a
4b	History of the United States 1830-1877	24	3	15	24	4b
5a	English history	16 or 24	2 or 3	10 or 15	16 or 24	5a
5b	English history	16 or 24	2 or 3	10 or 15	16 or 24	5b
2a	Modern European history	16 or 24	2 or 3	10 or 15	16 or 24	2(I)
2b	Modern European history	16 or 24	2 or 3	10 or 15	16 or 24	2(II)
139a	Europe since 1815, Part I	16 or 24	2 or 3	10 or 15	16 or 24	139
10a	Ancient history	24	3	15	24	10(I)
10b	Ancient history	24	3	15	24	10(II)
1a	Medieval history	16 or 24	2 or 3	10 or 15	16 or 24	1(I)
1b	Medieval history	16 or 24	2 or 3	10 or 15	16 or 24	1(II)
84	The teaching of history	16	2	10	16	84
HOME ECONOMICS						
1	Food problems in home making	8		5	8	
6	Prevention of disease and home care of the sick	8		4	8	
10	Clothing economics	16	2	10	16	10
15	Home furnishing and decorating	8		5	8	
17	Dress selection and appreciation	8		5	8	
19	Household management	8		5	8	
25	The school lunch	8		5	8	
110	Household administration	16	2	10	16	110
INDUSTRIAL ARTS						
180	Principles of educational and vocational guidance	16	2	10	16	180
181	Vocational and educational guidance techniques	16	2	10	16	181
ITALIAN						
1a	Elementary Italian	32	4	20	32	1a
1b	Elementary Italian	32	4	20	32	1b
10a	Intermediate Italian	24	3	15	24	10a or 10b
LATIN						
1	Elementary Latin	40	5	25	30	1
1HS	Elementary Latin	30		18	21	
2	Caesar	40	5	25	30	2
2A	Caesar	16	2	10	12.50	

Course Number	Title of Course	No. of Assignments	Credits	Tuition in Wisconsin	Tuition outside Wisconsin	Course No. of Residence Equivalent
2D	Caesar for students of medicine and pharmacy	40	5	25	30	2
2HS	Division A, Third-semester high-school Latin	15		9	11	
2HS	Division B, Fourth-semester high-school Latin (for the 2-yr. Latin course)	15		9	11	
2B	Fourth-semester high-school Latin (for the 3-yr. Latin course)	15		9	11	
3	Cicero: Orations	32	4	20	25	
3HS	Cicero: Orations	30		18	21	
4	Virgil: Aeneid	32	4	20	25	4
4HS	Virgil: Aeneid	30		18	21	
4A	Virgil: Metre of the Aeneid	5		2.50	5	
5	Sallust: The Conspiracy of Catiline	16	2	10	16	5
9	Elementary composition	40	5	25	30	
7	Livy, books I and XXI	24	3	15	24	6b
10	Cicero: De Senectute	16	2	10	16	5
12	Terence: Andria and Phormio	16	2	10	16	6a in part
14	Horace: Odes	24	3	15	24	7a in part
15	Horace: Satires and Epistles	24	3	15	24	
16	Catullus	16	2	10	16	6b in part
17	Ovid: Metamorphoses	16	2	10	16	
18	Propertius: Elegies	8	1	5	8	
19	Tibullus: Elegies	8	1	5	8	
20	Cicero: Letters and orations	24	3	15	24	108
101	Advanced composition	16 or 32	2 or 4	10 or 20	16 or 32	101
113	Ancient classical drama in English	16 or 24	2 or 3	10 or 15	16 or 24	
118	Classical mythology in literature	16	2	10	16	
130	Medieval Latin poetry	16	2	10	16	
LIBRARY METHODS						
1	Library methods for teacher-librarians	32		16	32	
2	Cataloging	16		10	16	
3	Elementary school library methods	16		10	16	
4	Library practice for apprentices	32		16	32	
5	The library as an adult education agency	10		5	8	
6	Government publications and pamphlet collections for small libraries	8		5	8	
MATHEMATICS						
9	Elementary algebra: Part A	20		10	15	
	Part B	20		10	15	
10	Plane geometry: Part A	20		10	15	
	Part B	20		10	15	
8	Solid geometry	20	3	15	20	8
2	Plane trigonometry	32	4	20	32	2
50	Advanced high-school algebra	20		10	15	50
1	College algebra	32	4	20	32	1
3	Analytic geometry: Part A	24	3	15	24	3
	Part B	8	1	5	8	
12A	Solid geometry	20		10	15	
12B	Plane trigonometry	20		10	15	
5	Elementary calculus: Part A	24	3	15	24	5a
	Part B	24	3	15	24	5b
6	Determinants and analytic geometry of three dimensions	24	3	15	24	6

Course Number	Title of Course	No. of Assignments	Credits	Tuition in Wisconsin	Tuition outside Wisconsin	Course No. of Residence Equivalent
71	Agricultural mathematics	32	4	20	32	71
45	Commercial arithmetic	10		5	10	
1	College algebra for commerce students	32	4	20	32	1
7	Mathematical theory of investment	32	4	20	32	7
24	Mathematics of life insurance	16	2	10	16	24
25	The theory of finite differences	8	1	5	8	
125	Theory of equations	24	3	15	24	125
111	Advanced calculus	24	3	15	24	111
112	Differential equations	32	4	20	32	112
113	Theoretical mechanics	24	3	15	24	113
263	Higher algebra	24	3	15	24	263
114	Modern analytic geometry	24	3	15	24	114
115	Projective geometry	24	3	15	24	115
117	Vector analysis	8	1	5	8	117
118	The theory of probabilities and methods of least squares	24	3	15	24	118
93	The teaching of secondary mathematics	16	2	10	6	93
20	Introduction to statistics	16	2	10	16	Educ. 2
50	Algebra for engineers	20		10	15	50
51	Elementary mathematical analysis	40	5	25	40	51
52	Elementary mathematical analysis	40	5	25	40	52
53	Elementary mathematical analysis	40	5	25	40	53
54	Differential and integral calculus	32	4	20	32	54
55	Calculus	32	4	20	32	55
31	Practical arithmetic	8		4	8	
33	Mensuration and practical geometry	8		4	8	
32	Practical algebra	12		6	10	
34	Practical trigonometry	8		4	8	
35	Practical calculus	10		5	10	
41	Agricultural arithmetic	8		4	8	
41A	Farm accounts	4		2	3	
62	Elementary algebra review	10		5	10	
MECHANICS						
1	Statics	24	3	15	24	1
2	Dynamics	16	2	10	16	2
3	Strength of materials	40	5	25	40	3
MUSIC						
1a	Harmony	24	3	15	24	1(I)
1b	Harmony	24	3	15	24	1(II)
11a	Second-year harmony	24	3	15	24	11(I)
11b	Second-year harmony	24	3	15	24	11(II)
21A	Elementary counterpoint	16	2	10	16	21(I)
21B	Elementary counterpoint	16	2	10	16	21(II)
51	Theory and practice of grade school music	16	2	10	16	51
31a	History of music	16	2	10	16	31
31b	History of music	16	2	10	16	31
78	Community music	16	2	10	16	78
PHARMACY						
1	Pharmaceutical technique: Part A	24	3	15	24	1(I)
	Part B	24	3	15	24	1(II)
20A	Elementary prescription practice	16	2	10	16	20(I)
20B	Prescription practice, solid preparations	16	2	10	16	20(II)

Course Number	Title of Course	No. of Assignments	Credits	Tuition in Wisconsin	Tuition outside Wisconsin	Course No. of Residence Equivalent
121A	Prescription practice, advanced	8	1	5	8	121
121B	Prescription practice, advanced	8	1	5	8	
128	Pharmaceutical technology	16	2	10	16	128
PHILOSOPHY						
41	Introductory ethics	24	3	15	24	41
PHYSICS						
1	Elementary physics	40		20	30	
87	Physics review	12		6	12	
1aE	University physics	24	3	15	24	1a
1bE	University physics	24	3	15	24	1b
51E	Engineering physics	24	3	15	24	51
52E	Engineering physics	24	3	15	24	52
117	Physical optics	16	2	10	16	117
60	Modern physics	32	4	20	32	
91E	University physics	8	1	5	8	91
340	Fundamentals of electrical engineering	32	4	20	32	E.E. 1
POLITICAL SCIENCE						
13	Municipal government	16	2	10	16	13
134	County and township government in the United States	16	2	10	16	134
125	Survey of world politics	24	3	15	24	125
127	Comparative government	24	3	15	24	127
123	American diplomacy	16	2	10	16	123
137	International organization	24	3	15	24	137
7	American government and politics, national	24	3	15	24	7a
PSYCHOLOGY						
1	General psychology	24	3	15	24	1
41	Psychology and the new education	24		15	24	
143	The psychology of individual differences and the measurement of intelligence	24	3	15	24	143
144	Psychology of learning	24	3	15	24	144
50	Applied psychology	16	2	10	16	50
PUBLICITY						
1	Writing publicity for clubs	8		5	8	
SCANDINAVIAN						
1a	First-semester Norwegian	32	4	20	32	1a
SCIENCE						
1A	General science	16		10	15	
1B	General science	16		10	15	
SOCIOLOGY						
1	Introductory sociology	24	3	15	24	1
2	Introductory sociology—social problems	24	3	15	24	2
140	Principles of sociology	24	3	15	24	140
141	Poverty and dependency	24	3	15	24	141
25	Rural life	24	3	15	24	25
161	Criminology and penology	24	3	15	24	161

Course Number	Title of Course	No. of Assignments	Credits	Tuition in Wisconsin	Tuition outside Wisconsin	Course No. of Residence Equivalent
SPANISH						
1a	Elementary Spanish	32	4	20	32	1a
1b	Elementary Spanish	32	4	20	32	1b
10a	Intermediate Spanish	24	3	15	24	10a
10b	Intermediate Spanish	24	3	15	24	10b
21	Special, Advanced Spanish reading	16	2	10	16	
25	Intermediate composition	16	2	10	16	25 in part
21b	Elementary survey of Spanish literature	24	3	15	24	21b
104a	Don Quijote, Part I	24	3	15	24	104(I)
104b	Don Quijote, Part II	24	3	15	24	104(II)
SPEECH						
1	Elementary speech writing	8		5	8	
30	The debate	8		5	8	
198	The teaching of speech	16	2	10	16	198
STATISTICS						
20	Introduction to statistics	16	2	10	16	Educ. 2
TEACHERS' REVIEW COURSES						
62	Elementary algebra review	10		5	10	
87	Physics	12		6	12	

SPECIAL COURSES

BUSINESS

- Complete course in accounting
- Banking and finance
- Management
- Marketing
- Retailing
- Secretarial training

CIVIL ENGINEERING

- Surveying
- Reinforced concrete engineering
- Structural steel engineering
- Building design and construction
- Structural engineering
- Bridge engineering

ELECTRICAL ENGINEERING

- Meterman's course
- Electrician's course
- Electrical design

MECHANICAL ENGINEERING

- Shop and industrial mathematics
- Mechanical drawing
- Drafting
- Machine design
- Architectural drafting
- Steam engineering

EXTENSION CLASSES

Extension classes are organized in various communities of the State whenever it is feasible to do so, and wherever a sufficient number of persons having a common interest in a given subject request such work. Many of the courses given by class instruction involve university credit for properly qualified persons. Other courses are organized and given independent of all curricular requirements for degrees, but definitely planned for vocational or avocational purposes.

MILWAUKEE CENTER

CHARLES MALTADOR PURIN, Ph.D., *Professor of German and Russian, Director*
GEORGE AMBROSE PARKINSON, Ph.D., *Professor, Assistant Director, in charge of evening classes.*

WILLIAM JOHN FULLER, B.A., *Professor of Civil and Structural Engineering*
MILES J. MARTIN, Ph.D., *Professor of Physics*
GEORGE GALLOWAY TOWN, Ph.D., *Professor of Chemistry*
CHARLES EDMUND YOUNG, Ph.D., *Professor of Romance Languages*
HARRY THOMPSON AVEY, M.E., *Associate Professor of Mechanical Engineering*
JOSEPH GEORGE BAIER, Ph.D., *Associate Professor of Zoology*
JOHN JOSEPH CREAMER, B.A., LL.B., *Associate Professor of English*
HILMAR CARL KRUEGER, Ph.D., *Associate Professor of History*
PAUL EMANUEL MILLINGTON, Ph.D., *Associate Professor of Chemistry*
PHILLIP HILMORE PERSON, Ph.D., *Associate Professor of Sociology*
WILLIAM EDWARD ROTH, Ph.D., *Associate Professor of Mathematics*
MARION REXFORD SCHNAITTER, M.A., *Associate Professor of Economics*
META MARY STEINFORT, M.A., *Associate Professor of Spanish*
RUTH IRENE WALKER, Ph.D., *Associate Professor of Botany*
HERBERT WILLIAM WESLE, B.S., *Associate Professor of Topographic Engineering*
MARY RUTH BABCOCK, M.A., *Assistant Professor of English*
LEO STARR BALDWIN, B.A., B.S., *Assistant Professor of Drawing*
ROSS HARVEY BARDELL, Ph.D., *Assistant Professor of Mathematics*
HELMUTH REINHOLD DOERING, B.A., M.B.A., *Assistant Professor of Business Administration*
MRS. ELISABETH KATZ HOLMES, M.A., *Assistant Professor of English*
GEORGE TALBOT HUNT, Ph.D., *Assistant Professor of History* (on leave yr.)
FRANK MCCALL HURSLEY, M.A., *Assistant Professor of English*
HARRY LEWIS KUNZE, M.A., J.D., C.P.A., *Assistant Professor of Accounting*
MRS. IRENE ETTA LANGWILL, B.A., *Assistant Professor and Recorder*
MORRIS MARDEN, Ph.D., *Assistant Professor of Mathematics*
RAYMOND H. MYERS, Ph.D., *Assistant Professor of Speech*
VICTOR A. REINDERS, Ph.D., *Assistant Professor of Chemistry*
THEODORE ALTON ROUSE, Ph.D., *Assistant Professor of Physics*
MRS. FLORENCE CLARKE STEHN, M.A., *Assistant Professor of French*
LOUISE ADELAIDE WOLF, Ph.D., *Assistant Professor of Mathematics*
LYNN ERLAND BAKER, Ph.D., *Instructor in Psychology*
EARL ROSS BELL, M.A., *Instructor in Physics*
DUDLEY COOKINGHAM BROOKS, M.A., *Instructor in English*
SZYMON STANISLAW DEPTULA, M.A., *Instructor in Polish and English*
HELEN ISOBEL FISH, *Assistant to the Recorder*
HIRAM ELVIN GRANT, B.S., *Instructor in Mechanical Drawing*
MERLIN LEWIS HAYES, Ph.D., *Instructor in Botany and Zoology*
ELSIE LAURA JAECK, B.A., *Instructor and Librarian*
LEE EDWARD LAWRENCE, Ph.D., *Instructor in History and Political Science*
ROBERT FELIX MORRISON, M.A., *Instructor in English*
GEORGE E. MOWRY, Ph.D., *Instructor in History*
EDWARD ALFRED NORDHAUS, M.S., *Instructor in Mathematics* (on leave yr.)
RUTH G. REINERT, Ph.D., *Instructor in History*
ROBERT ROEMING, M.A., *Instructor in Italian and French*
HAROLD HERBERT SNYDER, B.S., *Instructor in Chemistry*
DONALD SWALHEIM, M.S., *Instructor in Chemistry*

GRACIA ELIZABETH TORINUS, M.A., *Instructor in English*
CHARLES TRASKELL, B.S., *Instructor in Physical Education*
JOHN ISAAC VASS, Ph.D., *Instructor in Mathematics*
MRS. FRIEDA ANNE MARIE VOIGT, M.A., *Instructor in German*
HERBERT THOMPSON WEBSTER, Ph.D., *Instructor in English*
ROBERT HULBURT WEIDMAN, Ph.D., *Instructor in German*
EUGENE FRANKLIN WILDA, B.S., *Instructor in Chemistry*

The work of the Extension Division in Milwaukee is carried on through day classes in which students take a full-time program of work, and evening classes in which they carry a part-time schedule of studies in the evening or late afternoon. The first unit of the University Extension Building occupies a portion of the block between Sixth and Seventh streets, facing State street. It has fully equipped science laboratories, spacious classrooms, and a library.

The fees in both day and evening classes are computed on the basis of the number of credit hours carried, the rate being $5.00 per credit hour. This does not cover the cost of textbooks or laboratory charges.

DAY CLASSES

The day classes offer complete programs of the work of the freshman and sophomore years in Engineering and Letters and Science, including pre-commerce, chemistry, pre-journalism, pre-law, pre-medicine, and pre-education.

With respect to their content, as well as with respect to general approach, the various courses offered in day classes are parallel to the courses listed under the same designations in the University at Madison. They have been approved by the respective residence departments at Madison and carry full credit toward a university degree.

ADMISSION REQUIREMENTS. The requirements for matriculation in the day classes are in all respects the same as in the University at Madison.

The courses offered in evening classes may be classified under four distinct heads:

EVENING CLASSES

University Credit Courses
Business Certificate Courses
Engineering Certificate Courses
Liberal Education Certificate Courses

The University Credit Courses are open to those who wish to obtain credits toward a degree during their spare time. To accumulate such credits students must have satisfied the entrance requirements of the University and must have the prerequisites for the courses taken.

With a few exceptions, the Business and Engineering Certificate Courses do not offer credits leading to a degree. On the completion of a three-year evening course of study, a certificate is given by the Extension Division. Certificates are offered in the following fields of commerce and engineering: General Business, Accounting, Marketing and Advertising, Finance and Credit, Industrial Management, Secretarial Work, Building Design, Machine Design, Structural Design, Heating, Ventilation, and Refrigeration.

The underlying purpose of the series of courses in Liberal Education is

to give an opportunity for adults to acquire an education which will create a feeling for those things that make life richer and more significant. A certificate is given on the satisfactory completion of twelve courses from this group.

POSTGRADUATE MEDICAL EXTENSION

In cooperation with the Medical School of the University, the Extension Division offers the following services to members of the medical and associated professions of Wisconsin:

MEDICAL LIBRARY SERVICE. Books, periodicals, reprints, abstracts, and bibliographies on medical subjects are supplied upon request, free of cost except for postage both ways on material loaned.

EXTRA-MURAL LECTURES. Addresses by members of the university medical faculty and associated preceptors are arranged for meetings of medical societies.

LECTURE-CLINICAL COURSES. Competent leadership is provided for practitioner groups organized at county or district centers for the clinical and theoretical study of modern developments in treatment.

SHORT COURSES. From time to time university facilities will be made available and short courses organized in particular subjects, open to the medical and associate professions of the State.

DEPARTMENT OF DEBATING AND PUBLIC DISCUSSION

ALMERE LOUISE SCOTT, B.A., DIRECTOR

IDA MARIE GANGSTAD, B.A., *Assistant Professor of Library Methods*
LEONA ESSIE FREDERICA MCCUTCHEON, M.A., *Assistant Professor of Debating and Public Discussion*
MRS. IONE BIRD MORRISON, *Instructor in Debating and Public Discussion*
MINNIE HENRIETTA POPE, B.A., *Instructor in Debating and Public Discussion*
RUTH MARY ROWLAND, *Instructor in Debating and Public Discussion*
MAMIE AMELIA SANDERS, B.A., *Instructor in Debating and Public Discussion*
MRS. GEORGIA METZGER CORP, *Assistant in Debating and Public Discussion*
MRS. GLADYS TRAYSER, B.A., *Assistant in Debating and Public Discussion*

PURPOSE

For the assistance and instruction of citizens who are interested in important social, educational, and political problems, the Department of Debating and Public Discussion fosters forum activities for deliberative study and discussion.

Inasmuch as the intelligent and active interest in and study of these questions among all classes of people tend essentially to the making of an enlightened citizenship, the department issues suggestive and guiding bulletins, collects and maintains a loan library available through parcel post to residents of the State, and keeps in close touch through correspondence and personal interviews with community centers, civic clubs, farmers' clubs, women's and business men's organizations, parent-teacher associations, school and library boards, and literary societies of educational institutions.

STUDY AIDS

GUIDED STUDIES. To meet a demand for group direction in serious study, the department offers Guided Studies. A registration fee of four dollars in Wisconsin and five dollars outside the State covers the cost of four sets of any of the studies. This fee also covers the privilege of guidance and directed study. For the accommodation of groups that wish to supply personal copies to members, additional sets are supplied at the cost of production. Single copies of the Guided Studies are available for independent study at forty and forty-five cents within the state of Wisconsin, with a 15% discount on the purchase of five or more copies, and at fifty and sixty cents outside the State, with a 10% discount on purchases of five or more copies.

The subjects on which studies are now available are: Age of Knighthood; American Diplomacy; American Life as Represented in Native One-Act Plays; Browning; Contemporary Drama; Contemporary American Novel; Contemporary English Novel; French History, Art, and Literature; Novel of the Nineteenth Century; Pan-American Relations; Recent History of the United States; and Shakespeare.

STUDY PROGRAMS. Topical programs are available on Africa; Africa in International Affairs; Alaska; American Artists; Ancient Greek Civilization; Architecture; Chinaware and Old Glassware; Choral Speaking; Citizens' Committee on Public Welfare in Wisconsin: Introductory Study, Child Welfare, Health and Disability, Dependency and Public Assistance, Delinquency and Corrections, County and State Organization, Finance, and Personnel; County and Town Government; Gardening: The Home Landscape, Building the Home Landscape, Public Problems in Landscape Design; Home Crafts; Map of Europe; Modern Italy; Modern Japan; Music in Twentieth Century America; Painting Beginning with the Renaissance; Parent Education; Philosophy; Political Parties and Practical Politics; Psychology; Representative Americans; Republics of South America; Scandinavia; Short Story; The Under-Privileged Child; United States and World Politics; United States Possessions and Cuba; Wisconsin Songs That Live. These programs may be purchased inside Wisconsin at from twenty-five to fifty cents per copy, with a 15% discount on the purchase of five or more copies; outside Wisconsin at from thirty-five to sixty-five cents, with a discount of 10% on five or more copies. In cooperation with public libraries and state library commissions, the department aims to make the necessary reference material available to study groups and to individuals.

PUBLICATIONS

Several compact and useful bulletins have been issued as aids to debaters, including: Debating Societies—Organization and Procedure; Principles of Effective Debating; How to Judge a Debate; and Triangular Debating Leagues. As special aids to organizations, bulletins on farmers' clubs, civic clubs, and parent-teacher associations, have been published. The Triangular Discussion League bulletin suggests a plan to encourage the study and the intelligent discussion of great current problems not suited to a two-sided contest, but adapted rather to a general discussion which brings out the many sides and salient facts.

FORMULATED QUESTIONS. Bulletins are available which formulate subjects for debate, give brief historical facts and arguments, and conclude with a selected, classified bibliography. These bulletins serve as an impetus to careful study,

and in such setting are helpful and time-saving. Such questions as the following have been thus presented: Chain Stores; Taxation; Installment Selling; Closed vs. Open Shop; Commission Plan of City Government; Initiative and Referendum; Municipal Unemployment Insurance; Radio Control; Federal Aid for Education; Socialized Medicine; Government Ownership of Electric Utilities; and Unicameral Legislatures. The Department will supply any of these bulletins upon receipt of the list price.

MIMEOGRAPHED MATERIAL. Cuttings for public speaking practice and study in schools and for special programs, and mimeographed articles otherwise not easily available, on such subjects as Chain Stores, Installment Selling, Compulsory Automobile Insurance, the Direct Primary, Unemployment Insurance, Radio Control, and Taxation are available. The department will send lists to those interested.

LOAN MATERIAL

The loan package libraries available to residents of Wisconsin include selected newspaper and periodical clippings, office-bound sections of periodicals, government documents, publications of organizations, copies of addresses, reprints, typewritten excerpts, books, in fact all forms of carefully selected available materials dealing in a fair and balanced manner with the different phases of worthwhile subjects. In order that material may be selected judiciously, it is essential that the request for a package library state definitely the purpose for which the information is desired, and the latest date upon which it would prove of value. The same material may not be equally adapted to or usable by a rural school pupil and a member of a woman's club. Package libraries should be selectively adapted to the user.

The department aims to cooperate in every possible way with local librarians. Requests from communities which have public libraries should state what is available locally. This will avoid unnecessary duplication and expense.

DEPARTMENT OF PUBLIC SERVICE

PURPOSE. The Department of Public Service is composed of bureaus which deal with the informal or non-consecutive type of service as distinguished from the more formal and systematic type of instruction. These bureaus are concerned with questions and problems of general interest and public welfare.

The department serves as a clearing house through which all reasonable inquiries of the people of the State on matters of collective import may receive consideration.

ORGANIZATION. The Department of Public Service operates through the following bureaus, each in charge of a specialist: Bureau of Lectures and Short Courses, Bureau of Visual Instruction, Bureau of Economics and Sociology, Bureau of Dramatic Activities, and Bureau of Business Information.

METHOD. The department seeks to serve the individual inquirer, the group, and the community in establishing contact with specific lines of information, through the accumulation of data and the presentation of such data in non-technical form from such diverse sources as the reports of government bureaus, commissions, and experimental stations; the proceedings of scientific societies; publications of an economic, a social, a political, or an ethical character.

BUREAU OF LECTURES AND SHORT COURSES

ROBERT B. DUNCAN, CHIEF

PURPOSE. For instruction and platform inspiration in communities where the lyceum need exists, the Bureau of Lectures and Short Courses organizes and supplies local programs.

SCOPE OF SERVICE. The University offers through this department: (1) single lectures or series of lectures; (2) lecture, concert, recital, or reading programs, or a miscellaneous combination of these. Such programs are offered with the definite purpose of developing better taste and higher standards with reference to public entertainments, and an appreciation of art, music, and literature by presenting examples.

LECTURES. The field covered by the lecture course is a wide one, including topics in education, history, geography and travel, economics, political science, sociology, business administration, the history and literature of ancient and modern peoples, including Greek and Roman, Scandinavian, German, Semitic, French, and English life and letters, the physical sciences, engineering branches, forestry, and physical training. Lists of speakers and detailed information will be sent upon request.

TEACHERS' CONVENTIONS AND INSTITUTES. The Extension Division will provide university speakers for these meetings as far as the regular work of the University will permit.

COMMENCEMENT ADDRESSES. This department arranges for commencement addresses to be delivered by members of the university staff and others available in this service. The charges for the speaker desired will be arranged in each case through the Extension Division.

SHORT COURSES AND INSTITUTES. A short course or institute is an intensive training program or course ranging in duration from one day to two weeks. The program consists of a specialized series of lectures, discussions, and demonstrations directed by leading speakers and teachers secured from the faculty of the University and from the State and country at large.

SPECIAL OCCASION LECTURES. This department furnishes speakers for special occasions, such as memorial and dedication exercises, and convocations in schools; also for commercial organizations and civic and women's clubs.

EXPENSES. The local expenses include hall rent and advertising in the local papers, and the lantern and operator, where the lecture is illustrated. Full information concerning lecturers' fees will be supplied on application.

BUREAU OF VISUAL INSTRUCTION

JOHN ELMORE HANSEN, Ph.B., CHIEF
FREEMAN HARDING BROWN, B.S., *Assistant Chief*
EFFIE APPLEBY, R.N., *Instructor*

The Extension Division has for loan purposes, lantern slides and motion picture films on nearly all educational subjects. These materials are available to individuals and institutions within the State for educational purposes. This

service is organized in the Bureau of Visual Instruction, which is making a thorough and systematic study of materials that may be used in illustrative teaching, or in instruction through the medium of the eye. Studies to determine the most effective methods in the use of these materials are being carried on constantly. The Bureau places such materials within easy and constant reach of all schools and other civic organizations of the State. A complete catalog describing the material and service offered is mailed free upon request.

PHOTOGRAPHIC LABORATORY. The University of Wisconsin Photographic Laboratory is the central laboratory for all University and State Departments. A staff of experienced workers is employed. The photographic equipment is of the best. Practically all types of photographic service are furnished at the bare cost of such service. All negatives are accessioned and filed so as to be readily accessible to the departments owning them. Close touch is maintained with developments in photographic practice for the benefit of those who wish assistance in doing their own photographic work, as well as for the benefit of the patrons of the laboratory.

BUREAU OF ECONOMICS AND SOCIOLOGY

ROY JEFFERSON COLBERT, Ph.D., CHIEF

As university studies in the social sciences have grown in interest and importance, there has developed an increasing demand for information, counsel, and service in the practical application of economic and sociological principles in the community. The Bureau of Economics and Sociology was instituted in 1927 to afford a channel through which to perform such services systematically and effectively. It is a cooperative undertaking of the Departments of Economics and Sociology and the Extension Division and is intended to promote a better understanding of the social and economic resources of Wisconsin and to make readily available to the people of the State the University's knowledge, experience, and researches in the handling of social and economic problems.

The functions of the Bureau, as at present being developed, are: 1. To provide individuals, groups, and communities of the State with counsel, information, and services in its field, in cooperation with other organized agencies, public and private. Such information and services are extended only when there is a definite request. 2. To collect, organize, and publish data relative to the social and economic resources of the State, in cooperation with the Departments of Economics and Sociology and state governmental departments and to make such information available to the schools and citizens of the State when they request it.

BUREAU OF DRAMATIC ACTIVITIES

ETHEL THEODORA ROCKWELL, B.A., CHIEF

The Bureau of Dramatic Activities is now in its eleventh year of organization as a cooperative agency of the Extension Division and the Department of Speech. Each succeeding year has shown an increase in the demand from all parts of the State for its varied services. More and more the people of the State are turning to those cultural and recreational activities that will give them opportunities for self expression and participation rather than to act simply as spectators of such activities. Many little or civic theatres and dramatic clubs

have been organized in both the rural and urban areas. Play producing is rapidly becoming an avocation of a considerable percentage of the state's adult population, which is turning to forms of recreation that can be secured at little expense. Use is also being made of the services of the Bureau by the schools and colleges of the State.

Correspondence on all questions relating to the arrangement and presentation of local-talent productions is invited. Specifically, the Bureau is prepared to render to schools, churches, clubs, little theatres, and communities of the State, upon request, the following services:

1. PLAY DIRECTING. Directors are available for the staging of plays and pageants in any community.

2. DRAMATIC LIBRARY. From the nearly 20,000 books and pamphlets containing plays and information on dramatic technique, the Dramatic Extension Library lends material to anyone in the State for reading and examination. Nearly 25,000 books and pamphlets are lent to people in the State annually.

3. PLAY LISTS. The Bureau has prepared a number of classified lists which are of great assistance to persons choosing a play for production.

4. TECHNICAL ADVICE. Information and suggestions are gladly given on problems of play production, organization of dramatic groups and little theatres, and the writing of plays. Communities and groups contemplating building an auditorium and stage are urged to consult the Bureau personnel for advice on the best and latest ideas on stage construction. Blue prints and drawings will be criticized.

5. BULLETINS AND STUDY COURSES ON DRAMATIC SUBJECTS. The Bureau has published a study course for little theatres and women's clubs called "American Life as Represented in Native One-Act Plays," by Ethel Theodora Rockwell. Other bulletins available are "Suggestions for Club Meetings," "Suggestions on Playwriting," "Dramatics for Amateurs," "Suggestions on Building a Stage," two pageants: "Children of Old Wisconsin" and "The Centennial Cavalcade of Wisconsin."

6. ORIGINAL PLAY-WRITING TOURNAMENTS. The Bureau desires to encourage the writing of original plays. It conducts tournaments in play-writing in the schools and communities of the State. New plays, both long and short, are constantly being referred to the Bureau of Dramatic Activities for criticism and suggestion. Nearly one hundred of these have been printed either by various publishers or privately.

7. DRAMATIC INSTITUTES. Numerous one-, two-, and three-day Institutes have been held throughout the State. In addition, an annual ten-day Dramatic and Speech Institute is held in Madison during the first two weeks of Summer School. This yearly institute gives intensive training in all the phases of Play Production and Play-Writing. In the eleven years of its existence it has proved most popular. Its chief aim is the training of leaders in community, church, and school dramatic activity.

8. LECTURES AND CONFERENCES ON DRAMATIC SUBJECTS. These may be arranged for by writing to the Bureau.

9. Sponsor and Clearing House for the Wisconsin Dramatic Guild. The membership of the Guild is composed of drama groups in urban little theatres, rural little theatres, schools, colleges, churches, and social and fraternal organizations. Each year the Guild conducts a Dramatic Festival Week during which tournaments are held and dramatic demonstrations are given. The Guild, which is state-wide, is steadily growing in influence and importance.

10. Courses. Regular class instruction may be given anywhere in the State on any subject pertaining to the Drama and to Play Production provided there is a sufficient demand for such instruction. Courses that have been offered in various cities are as follows:

(a) *Community Play Production.* This course is available for any adult group in the State, either for two university credits or as a non-credit course. It consists of sixteen meetings of two hours each. Prerequsities: Junior standing and consent of instructor.

(b) *Play Writing.* This non-credit course is offered in order to encourage the study of drama as literature and to inspire the citizens of Wisconsin in creative work. Classes may be organized for ten or sixteen meetings to be held once a week for two hours each.

(c) *Survey of Modern International Drama.* A lecture non-credit course is offered by various professors familiar with the modern dramatic literature of all the leading countries. It may be taken as a one or two semester course with one meeting of two hours each week.

DEPARTMENT OF BUSINESS ADMINISTRATION

(bureau of business information)

Lester Frank Brumm, M.S., Head

The Department of Business Administration operates a Bureau of Business Information at the University Extension Division where business men of Wisconsin may, without charge, receive answers to their inquiries regarding specific questions within the field of accounting, banking and finance, business English, business law, insurance, management, marketing, real estate, and statistics.

The Bureau, in addition to a reference library on business subjects, has extensive files of pamphlets, monographs, business magazines, trade journals, and clippings. It also receives regularly the Market Information Service of the United States Department of Commerce and numerous other publications issued by the federal and state governments, bureaus of business research, trade associations, and business organizations.

When an inquiry cannot be satisfactorily answered by letter, the Bureau prepares a package of books and materials from its files and lends it to the inquirer through the Department of Debating and Public Discussion of the University Extension Division.

The Bureau is not in a position to undertake any extensive researches. Research projects are referred to the School of Commerce, which will make such studies for the trade and financial organizations of Wisconsin as funds will permit.

FIELD ORGANIZATION

CHESTER ALLEN, DIRECTOR

MARY KATHERINE FARRELL, B.A., B.M., *Field Representative, Madison*
STEVE CHARLES GOVIN, B.S., *Director of Education, Green Bay Reformatory*
MARSHALL CONANT GRAFF, M.A., *Field Representative, Appleton*
CARL EMANUEL JOHNSON, Ph.D., *Director of Education, State Prison, Waupun*
OTTO LOUIS KRASSELT, B.A., *Field Representative, Eau Claire*
WILLIAM HENRY H. LIESCH, *Field Representative, Oshkosh*
MYRON JAMES LOWE, *Field Representative, Milwaukee*
BENNO WALTER MEYER, B.S., *Field Representative, La Crosse*
KARL HENRY RANG, Ph.D., *Field Representative, Madison*
MRS. LEONE PROCHNOW FORKNER, *Assistant, Madison*

For convenience and efficiency of administration the State is divided into districts in which field representatives are permanently located to make known the many opportunities available to each individual and community through the Extension Division.

Persons living anywhere in the State are thus able to have a personal conference in their own city with a university respresentative and to secure conveniently complete information regarding all the services of the Extension Division: correspondence-study courses; local classes; package libraries; lectures and short courses; lantern slides and motion picture films; dramatic activities; and information on problems of business, economics, and sociology. The field representatives are ready at all times to give assistance in promoting these services in the interest of the local community.

OFFICE OF THE EDITOR

LOUIS W. BRIDGMAN, B.A., EDITOR

The general purpose of the work of the editor is to make known to every citizen in the State the opportunities available through the Extension Division.

PART VIII—
OTHER DIVISIONS OF INSTRUCTION

SUMMER SESSION
PHYSICAL EDUCATION
MILITARY SCIENCE

SUMMER SESSION

SCOTT H. GOODNIGHT, DEAN

The Summer Session, instituted forty-one years ago as a period of study and review for teachers, has become an integral part of the university year, with nearly all departments represented. The courses range through all grades of undergraduate work to the most advanced graduate instruction and investigation. The work for teachers and for graduate students receives major emphasis, but very many undergraduate students of this and other colleges now avail themselves of the opportunity thus presented to shorten the period of their college residence or to make up deficiencies in either preparation or course requirements. They have the advantage in summer of being free from many of the distractions (inter-collegiate games, fraternity rushing, etc.) which obtain during the semester. At the same time there is no lack of social life and wholesome recreation during the summer.

Courses, both academic and professional, are offered for graduates and for undergraduates in letters and science, education, engineering, medicine, law, and agriculture, for teachers in colleges, agricultural schools, high schools, and technical schools, and for special students, as lawyers, doctors, chemists, writers, social workers, farmers, and practicing engineers. Virtually all the courses carry full academic credit. All the library, laboratory, and other facilities of the University are available during the summer, and the opportunities for thesis and advanced investigative work are particularly favorable at this time. A special bulletin, describing the various courses is issued annually, copies of which may be obtained upon application to the Dean of the Summer Session.

UNDERGRADUATES. The admission requirements for a student who desires credit toward a degree at Wisconsin are the same for the summer session as for the other sessions at the University; these are described in detail beginning with page 34. A student who desires to graduate from the University and who comes with advanced standing from a normal school or from another college or university, should submit a complete official record of his preparatory work and college credits to the advanced standing committee of the college he expects to enter.

A student who wishes to secure credit toward graduation at some other institution, but who is not a candidate for a degree at Wisconsin, need not comply with the entrance requirements but may register upon presentation of a satisfactory statement of status and aims. Forms for such statements are provided in the summer session bulletin. Upon registration by this method, a student may enroll in any course or courses, which, in the estimation of the instructor in charge, he is able to carry to advantage. Upon satisfactory

completion of such work, application may be made to the Registrar for a transcript of credits, stating the number of hours, work carried, and the grades earned. Credit toward graduation at this University, however, will be given only after complete matriculation by one of the regular methods.

GRADUATES. A general statement of work in the Graduate School may be found on page 442 of this catalog. The Graduate School also publishes special bulletins containing detailed information.

The University has instituted special nine-week summer session courses for graduate students only. These courses enable graduate students to earn one-half semester of residence credit toward a higher degree. To be eligible to carry these courses, a student must be enrolled in the Graduate School. No auditors are permitted in the nine-week courses. It is probable that in future summers the number and range of the nine-week courses will be increased.

The inauguration of nine-week courses does not affect the privilege of doing graduate work in the six-week session.

CREDITS. The maximum number of credits which may be earned toward a degree at Wisconsin is six for the six-week session, eight for the ten-week session of the Law School, and one for each week of pre- or post-session or special work for which the student is properly registered. However, upon request, programs of seven or eight credits are authorized in the six-week session for purposes of transfer and for promotional credit in school systems. In the Graduate School, credit is by period of residence only, a six-week session yielding one-third of a semester and a nine-week session yielding one-half a semester of residence credit toward a higher degree.

Each student not enrolled in the Graduate School will be required to carry at least four credits of work unless specifically exempted from this requirement by the Dean of the Summer Session. Students enrolled in the Graduate School will arrange their programs with the Graduate Office.

SUMMER SESSION FEES

INCLUDING TUITION, INCIDENTAL, AND INFIRMARY (BUT NOT LABORATORY) FEES

Both residents and non-residents of Wisconsin pay the same fees.

I. For undergraduates and graduates in all colleges and schools, except the Graduate School, the basic rate is $4.50 per week plus a special fee of $4.00 for the Infirmary, Union, and publications.

Classification	Period	Tuition	Infirmary, Union, and Publications fee	Total
Railway Engineering	2 weeks	$ 9.00	$ .50	$ 9.50
Field Courses	4 weeks	18.00	1.00	19.00
Chemical Engineering	5 weeks	22.50	4.00	26.50
General Session—Undergraduates	6 weeks	27.00	4.00	31.00
Law School	10 weeks	45.00	4.00	49.00

II. For graduates admitted to registration in the Graduate School, the rate is $5.00 per week plus Infirmary, Union, and publication fees.

General Session				
Graduate School	6 weeks	$30.00	$ 4.00	$34.00
Special Courses				
Graduate School	9 weeks	45.00	4.00	49.00

Pre- and Post-Session Fees

Undergraduate: $4.50 per week. If registrant was not in Summer Session, $8.50 for first week and $4.50 for each succeeding week.

Graduate: $5 per week. If registrant was not in Summer Session, $9.00 for first week, and $5 for each succeeding week.

Graduate students pursuing no courses but who are candidates for an oral examination during the session, may register after the third week of the session for a fee of $10, but may earn no credit. The Graduate School also charges such students an examination fee of $10.

REFUND OF FEES

Upon recommendation of the Registrar, the Cashier is authorized to make partial refund of fees to students withdrawing early from the Summer Session.

There will be no refund, however, of fees paid for shorter periods than the six-week session, of the reduced fees paid by graduates not working for credit, or of post-session fees.

Withdrawal	Six-week Courses	Nine-week Course	Ten-week Courses	Refund
Without attendance at any class				100%
Within	4 days	6 days	7 days	80%
Between	5th and 8th days	7th and 12th days	8th and 13th days	60%
Between	9th and 12th days	13th and 18th days	14th and 20th days	40%
Between	13th and 16th days	19th and 24th days	21st and 27th days	20%
After	16th day	24th day	27th day	None

Other Expenses. In courses involving laboratory work, additional fees are charged; these correspond closely to the laboratory fees charged for the same courses taken during the academic year. Other expenses for the six-week session may be estimated from the following: room-rent $12-$30; board, $30-$45; books and classroom materials, $8-$15; incidental expenses, including laundry, $12-$40; total, not including fees or traveling expenses, $62-$130.

PHYSICAL EDUCATION

The aims of the Departments of Physical Education are (1) to promote the physical development of the students by contributing to their health, organic vigor, and good physical habits; (2) to provide an incentive and an opportunity for every student to engage in some physical activity at least one hour daily as a balance to the sedentary demands of university life; (3) to provide the opportunity for students to participate in and secure a reasonable degree of skill in a program of leisure time or carry-over activities both for immediate and later appreciation; (4) to offer opportunities for worth-while social contacts in the activities of the general program, and in intramural sports and contests; (5) to train physical educators and play leaders; and (6) to promote a more effective organization of play and administration of physical education throughout the state of Wisconsin.

EXEMPTIONS AND DEFERMENTS

All applications for deferment of or exemption from physical training for men must be made at the office of the Director of the Men's Gymnasium; (women will apply to the Director of the Women's Department in Lathrop Hall). In no case will permission be granted to defer work for more than one semester at a time, and no deferment work will be allowed to extend into the senior year.

I. EXEMPTIONS PROVIDED FOR BY THE RULES OF THE UNIVERSITY

1. Students who are physically unfit, as certified by the Department of Student Health.
2. Normal-school graduates and those who enter the University with college credits sufficient to give them sophomore standing.

II. EXEMPTIONS UNDER THE POLICY OF THE DEPARTMENT

1. Students from institutions of college or university rank who have taken accredited courses in physical education, providing proper credentials are presented.
2. Adult special students over 23 years of age who are not candidates for degrees.
3. Other cases, at the discretion of the Director.

III. DEFERMENTS REQUIRED TO BE MADE UP IN THE DEPARTMENT

1. Self-supporting students where the hours of labor actually conflict with hours of required work.
2. All cases not falling under any of those previously mentioned.

MEDICAL AND PHYSICAL EXAMINATIONS

The organic condition, stage of physical development, and degree of motor efficiency attained by each entering freshman are determined at the opening of the college year by a series of examinations and tests made by the Department of Student Health and the Division of Physical Education. An endeavor is

made to determine the student's exact organic condition with a view to outlining for him a proper regimen of exercise, diet, rest, and work. Students are classified on an organic scale and are permitted to engage only in sports and games for which they are physically fitted. No student is permitted to participate in competitive games either of intercollegiate or intramural grade unless physically fit therefor, as determined by the examination. All candidates for freshman sports must be examined by and secure the permit of the Department of Student Health as well as that of the Division of Physical Education before reporting for practice with their squads. Members of intramural teams must also receive the approval of the Department of Student Health before actively participating in contests.

VOLUNTARY EXERCISE

All students are urged to take at least one hour of recreative exercise each day, and the facilities of the entire department are open for this purpose whenever not required for prescribed activities. Advice and direction may be secured by any student at any time. All advanced practice courses are open to any student fitted to take them.

DIVISION OF PHYSICAL EDUCATION AND INTRAMURAL ATHLETICS—MEN

GUY S. LOWMAN, DIRECTOR

JURISDICTION

The Division of Physical Education and Intramural Athletics for men has jurisdiction over all required and intramural physical education activities.

FACILITIES AND EQUIPMENT

The Men's Gymnasium, 200 feet in length by 100 feet in width, with an annex 225 by 84 feet, is located on the shore of Lake Mendota. On the ground floor of the gymnasium are the offices, locker rooms, showers, and swimming pool. The second floor is an unobstructed hall 165 by 98 feet used for intramural activities and freshman varsity basketball practice. The main gymnasium hall, 165 by 65 feet, is located on the third floor, and includes the usual gymnasium equipment and handball courts. The annex is equipped with a 12-lap cinder track, a baseball cage, and a rowing room.

The lower campus an open playground of two acres, is located directly in front of the Men's Gymnasium, and is used for the required activities of the department during the early fall and spring. During the winter months this campus is flooded and used for varsity and intramural ice hockey. In addition to the lower campus, the outdoor facilities of the General Division of Physical Education includes an intramural plot of sixteen acres which provides for four touch football fields, three handball diamonds, a one-eighth mile track, twenty-three tennis courts, and available space for a number of softball diamonds.

Extensive water sports are promoted during the spring and summer months. Lake Mendota, which adjoins the campus, affords excellent opportunities for swimming, canoeing and crew. The University boat house, just back of the Men's Gymnasium on the shore of Lake Mendota, is equipped with eight-oared

shells, four-oared barges, war canoes, and provides storage room for canoes belonging to students.

Outdoor winter sports are particularly encouraged. There are opportunities for skating and hockey on the rinks maintained by the department on Lake Mendota and on the lower campus. A ski jump of 115 feet has been constructed, which is one of the best in this part of the country. The University also maintains a toboggan slide. Lake Mendota offers excellent opportunities for ice boating.

REQUIREMENTS FOR MEN

All freshman men are required to take three hours a week of either physical education, military science, or band instruction. The requirement in physical education may be satisfied in part through participation in team sports or intramural sports, or through physical education classes. These may be selected from the list of activities given below. All students who are not physically fit to participate in the sport program are required to enroll in corrective or health classes. Students electing any phase of physical education must register at the Men's Gymnasium at the regular appointed time at the beginning of each semester.

All students taking physical education are required to be able to swim a distance of 50 yards by the end of the freshman year, and to pass a test in knowledge, skill, and ability in those activities which they have elected.

The regulation indoor suit for men consists of a white sleeveless shirt with "Wisconsin" across the front, white running pants with cardinal trim, supporter, sweat socks, and rubber soled shoes. The outdoor suit consists of a plain gray sweat suit.

All students are privileged to make use of all gymnasium and intramural facilities.

VARSITY SPORTS

FALL	WINTER	SPRING
Baseball	Basketball	Baseball
Basketball	Crew	Crew
Crew	Fencing	Cross-country
Cross-country	Gymnastics	Football
Fencing	Ice Hockey	Golf
Football	Skating	Tennis
Gymnastics	Skiing	Track
Swimming	Swimming	
Track	Track	
Wrestling	Wrestling	

INTRAMURAL SPORTS

Basketball	Basketball	Baseball
Bowling	Bowling	Crew
Cross-country	Boxing	Diamondball
Tennis	Hockey	Golf
Touch football	Swimming	Tennis
Volleyball	Track (indoor)	Track
	Volleyball	
	Water-polo	
	Wrestling	

PHYSICAL EDUCATION CLASSES

Basketball	Basketball	Baseball (playground)
Corrective	Boxing	Canoeing
Cross-country	Corrective	Corrective
Fencing	Fencing	Cross-country
Football (touch)	Gymnastics	Gymnastics
Gymnastics	Handball	Swimming (advanced)
Soccer	Swimming (advanced)	Tennis
Swimming (beginners only)	Track	Track
Track	Tumbling, apparatus and stunts	
Tumbling, apparatus and stunts	Volleyball	
Volleyball		

ATHLETIC COMPETITION FOR MEN

Intramural tournaments and contests for men are conducted in all games and sports, and their conduct and management are under the supervision of the Division of Physical Education and Intramural Athletics. An Advisory Board, consisting of three representatives from fraternities, two from dormitories, and two from the independent groups, advise with the department in all matters pertaining to intramural administration.

INTERCOLLEGIATE ATHLETICS

HARRY STUHLDREHER, DIRECTOR

The University is a member of the Western Intercollegiate Conference Athletic Association and maintains representative teams in all intercollegiate sports. The requirements for membership on an intercollegiate team are as follows: one year's residence at the University; regular enrollment and a full program of studies in the college or school in which the student is enrolled; no disciplinary probation; no unsatisfied failure, condition, or incomplete. In the College of Engineering probation incurred during either an academic year or a summer session also disqualifies.

Intercollegiate sports are under the government of the Athletic Board, a committee of seven members consisting of four faculty members, two representatives of the Alumni Association, and the president of the Student Athletic Board. The four faculty members of the Board are chosen by the President, in conjunction with the University Committee; the two alumni members are chosen by the President from a panel of six nominees presented by the Alumni Association. All appointments are subject to confirmation by the Board of Regents.

WOMEN'S DEPARTMENT

BLANCHE M. TRILLING, DIRECTOR

EQUIPMENT

The Women's Department is housed in Lathrop Hall. The main gymnasium is two stories high, with floor 118 by 60 feet, visitors' gallery, and running track. A smaller gymnasium is located adjacent to the main gymnasium. A corrective gymnasium, a dance studio, and a lecture room are on the fifth floor, and an additional lecture room is located on the first floor. Each room is suitably equipped for the type of class conducted there. Two

floors of one wing contain dressing rooms, showers, and lockers, designed for the accommodation of 1,000 students. In the basement are four bowling alleys, the swimming pool 60 by 20 feet, well lighted and ventilated, and supplied with filtered and chlorinated water. Just off the swimming pool are dressing rooms, showers, and hair-drying room. A suitably appointed rest room is also located in the basement.

OPPORTUNITIES FOR PARTICIPATION

The Women's Athletic Association, organized on the basis of clubs, cooperating with the department, offers a variety of intramural activities such that every girl may enjoy some form of exercise and competition.

Hockey Club, Bowling Club, Basketball Club, and the other sport clubs offer their members an opportunity for participation in the more formal types of organized competition. Outing Club promotes interest in such activities as hiking, skiing, coasting, tobogganing, skating, canoeing, and weekend parties at the Cottage on the shore of Lake Mendota; Dolphin Club stimulates interest in swimming, diving, and water games; Orchesis, both junior and senior divisions, offers an opportunity for the study of the dance beyond regular scheduled classwork; Bit and Spur promotes informal group riding and more advanced instruction.

REQUIREMENTS FOR WOMEN

The equivalent of two hours a week is required in each season of all freshman women, to be elected from the list of activities given below.

The college year is divided into four terms, (1) Fall—September to November; (2) Winter—November to February; (3) February to April; (4) Spring—April to June. At the beginning of the semester, all women taking elective or required work must register in Lathrop Hall for their work for the coming semester. This must be done at the appointed time regardless of whether physical and medical examinations have been taken.

PROGRAM OF ACTIVITIES

FALL	WINTER	SPRING
Corrective work	Badminton	Archery
Dancing	Basketball	Baseball
Field Hockey	Baseball	Canoeing
Fundamental Gymnastics	Bowling	Corrective work
Golf	Corrective work	Dancing
Health work	Dancing	Golf
Riding	Fencing	Health work
Swimming	Fundamental Gymnastics	Riding
Tennis	Golf	Swimming
Volleyball	Health work	Tennis
	Ice hockey	
	Skating	
	Skiing	
	Volleyball	

For women a uniform suit is required and should be purchased in the fall in Madison; the cost is about $3.00. Regulation rubber sandals are required for those enrolled in swimming.

All students are privileged to make use of any gymnasium and intramural facilities.

MILITARY SCIENCE

WILLIAM G. WEAVER, B.S., B.A., *Lieutenant Colonel of Infantry, USA, Commandant and Professor of Military Science*
NORMAN MARCUS NELSEN, *Major of Infantry USA, Assistant Professor of Military Science*
HERBERT HORTON LEWIS, *Major of Infantry USA, Assistant Professor of Military Science*
CLARENCE L. STRIKE., B.E., *Major, Signal Corps, USA, Assistant Professor of Military Science*
WILLIAM BURBRIDGE YANCEY, LL.B., *Major of Infantry USA, Assistant Professor of Military Science*
WENDELL PHILLIPS TROWER, B.S., *Captain, Corps of Engineers, USA, Assistant Professor of Military Science*
ROBERT HAMMIELL NAYLOR, B.S., *Captain, Corps of Engineers, USA, Assistant Professor of Military Science*
CHARLES SAMUEL HOOD, *Master Sergeant, USA Retired, Assistant to the Commandant*

OBJECT AND SCOPE OF INSTRUCTION

The object of this instruction is partially to prepare students to perform the duties of commissioned officers, so that in time of national emergency educated men with some knowledge of military science and tactics may be available to lead the units of the armies upon which the safety of the country will depend. Generally the best time of such instruction is that available during the period one attends college or university.

The courses in military training prepare for leadership in civil life as well as in the military service, for the same qualities are demanded in both. The tactful handling of men, the ability to cooperate with others, the organization of effort and resources are common factors of success in either military or civil life. Military training develops efficiency, patriotism, leadership, and those qualities of manliness so essential in all walks of life.

The courses provide ground work upon which to build character and proficiency and are designed to develop the greatest possible initiative on the part of the student. They also provide that the cadet officers and non-commissioned officers shall participate in the administration and training and share in the responsibilities thereof.

REQUIREMENT

Freshman men are required to take three hours a week of either military science, physical education, or band instruction. If military science is elected, it must be pursued continuously for two years, unless deferment of the course is secured from the Military Department. One academic credit per semester is granted toward graduation for each of the four semesters. The two years must be completed in any case prior to graduation unless excused because of permanent physical disability.

Students entering from schools where they have had the basic ROTC course may take the advanced course in the freshman year in fulfillment of the general option in military science, but with only one academic credit per semester. In the sophomore year the advanced course may be elected for two academic credits per semester.

RESERVE OFFICERS' TRAINING CORPS

The Department of Military Science comprises Infantry, Corps of Engineers and Signal Corps units of the Reserve Officers' Training Corps, organized under the National Defense Act of June 3, 1916. This act provides for a progressive course of military training consisting of two years of basic and two years of advanced work. Three hours a week are required in the basic course and five in the advanced course.

Enrollment in the various units is open to all physically qualified male students between the ages of 14 and 26 who are citizens of the United States. Enrollment in the Engineer unit is limited to students pursuing courses in Engineering. Enrollment in the Signal Corps unit is restricted to students taking Electrical Engineering and a limited number of students who are taking other academic courses.

Upon completion of the sophomore year of the basic course, those students who are selected for further military training by the President of the University and the Commandant may elect to take the work of the advanced course. This necessitates a written agreement on the part of the student that he will continue the work taking it five hours a week for two years, and attend one summer camp of not more than six weeks' duration.

Upon the execution of this agreement, the War Department furnishes to members of the advanced course, in addition to uniforms and equipment, commutation of subsistence at the rate of about $7.50 a month for twenty-one months. Students enrolling in the advanced course must begin the work in such course at least two years prior to normal completion of the students' academic course, save in exceptional cases, and then only upon the fulfillment of certain conditions. Students who begin the basic course and later withdraw from the college are under no obligation to the government whatever, unless they re-enter this institution at a later date, in which case they are required to continue their military science course.

Students are paid at the rate of $21 a month while attending advanced course camps. All transportation to and from the camp and the expenses at camp are paid by the government.

Upon satisfactory completion of the advanced course, including the prescribed camp training, graduates who are twenty-one years of age are eligible for appointment by the President of the United States as members of the Officers' Reserve Corps, United States Army. Such graduates who are not yet twenty-one years of age are given certificates of eligibility for commission. Upon reaching the age of twenty-one, those students are commissioned as Second Lieutenants, Officers' Reserve Corps, without any mental or physical examination.

UNIFORMS

Basic course students make one deposit of $2.00 at the beginning of each semester. There is no additional cost, the uniform, arms and equipment are furnished by the Federal Government. Each advanced course student makes one deposit of $7.50 which is the only fee required and in return receives an excellent uniform. He retains this uniform upon completion of the course. It is suitable for wear after he receives his commission in the Reserve Corps.

PERSONNEL AND EQUIPMENT

The instruction in the Department of Military Science is conducted by a corps of seven Regular Army officers selected by the War Department from

the Infantry, Corps of Engineers and Signal Corps and, in addition, selected non-commissioned officers of these branches, highly trained in their profession. A considerable amount of equipment has been provided by the Federal Government in order that instruction may be both complete and practical.

EXTRA CURRICULA ACTIVITIES

The department maintains representative teams in rifle and pistol shooting. Both squads receive training in shooting for about five months during the year, and fire correspondence matches with all the leading schools and colleges in the United States, as well as several shoulder-to-shoulder and special matches.

A drill team is maintained by the department, composed of selected advanced course students. It competes with teams of other institutions and also appears in exhibition drills on occasions.

Scabbard and Blade is a national honorary fraternity of 80 chapters to which advanced course students are eligible for membership. Company A, First Regiment, was founded at this University in 1904.

Pershing Rifles is a national honorary fraternity of 27 chapters in which basic course students are eligible for membership. Company G, Second Regiment, was organized at this University in 1936.

BASIC COURSES

1. First-Year Basic Infantry. Yr; 1 cr. National Defense Act and the R.O.T.C., obligations of citizenship; military history and policy; military courtesy and discipline; military sanitation and first aid; military organization; map reading; leadership; rifle marksmanship. Major Lewis.

2. First-Year Basic Engineer. Yr; 1 cr. Same as Military Science 1. Major Lewis.

3. First-Year Basic Signal Corps. Yr; 1 cr. Same as Military Science 1, except that elementary wire communication is substituted for rifle marksmanship. Major Lewis and Major Strike.

21. Second-Year Basic Infantry. Yr; 1 cr. Leadership; automatic rifle; characteristics of infantry weapons; musketry; scouting and patrolling; combat principles of the rifle squad and section. Major Yancey.

22. Second-Year Basic Engineer. Yr; 1 cr. Leadership; characteristics of infantry weapons; musketry; scouting and patrolling; military sketching and mapping; aerial photography. Captain Naylor.

23. Second-Year Basic Signal Corps. Yr; 1 cr. Leadership; radio communication; field systems; material; code practice; radio procedure. Major Strike.

131. First-Year Advanced Infantry. Yr; 2 cr. Administration; motor vehicles; chemical warfare; aerial photographic reading; leadership; machine guns; howitzer company weapons; pistol; review of rifle marksmanship; combat training; estimate of the situation and combat orders, marches, security; development for combat; offensive and defensive combat; organization of the ground; combat principles of the rifle platoon; machine gun platoon and howitzer company squad; field fortification. Colonel Weaver.

132. First-Year Advanced Engineer. Yr; 2 cr. Military roads; military bridging; demolitions; administration; chemical warfare; field fortifications; leadership; combat orders; combat principles, engineer and infantry. Captain Trower.

133. First-Year Advanced Signal Corps. Yr; 3 cr. Administration; chemical warfare; combat orders; homing pigeons; cryptography; organization of infantry division; leadership; general signal communication; wire communication; radio communication; signal communication tactics; aerial photography. Major Strike.

141. Second-Year Advanced Infantry. Yr; 2 cr. Military history and policy; military law; property; ORC regulations; leadership; tanks and mechanization; combat training; combat principles of rifle and machine gun companies and howitzer company platoon; anti-aircraft defense; anti-tank defense; combat intelligence; signal communications. Major Nelsen.

142. Second-Year Advanced Engineer. Yr; 2 cr. Military history and policy; military law; leadership; property; ORC regulations; mess and supply; combat problems; combat principles; engineer and infantry; military bridging; organization of the ground. Captain Trower.

143. Second-Year Advanced Signal Corps. Yr; 1 cr. ORC regulations; military history; military laws; property; training management; leadership; general signal communication; signal motor transport. Signal Corps Seniors attend regular classes in Military Science only 3 hours a week. In addition they are required to elect certain prescribed courses in the department of Electrical Engineering or special courses in Cryptography, Photography, or Supply. For Electrical Engineers see Announcement of courses in Electrical Engineering; for non Electrical Engineers see Signal Corps Instructor. Major Strike.

PART IX—ASSOCIATED SCIENTIFIC INSTITUTIONS

FOREST PRODUCTS LABORATORY
STATE LABORATORY OF HYGIENE
UNITED STATES WEATHER BUREAU
WASHBURN OBSERVATORY
WISCONSIN GEOLOGICAL AND NATURAL HISTORY SURVEY
STATE OF WISCONSIN GENERAL HOSPITAL
WISCONSIN PSYCHIATRIC INSTITUTE
STATE HISTORICAL SOCIETY
MUSEUMS
WISCONSIN ACADEMY OF SCIENCES, ARTS AND LETTERS
ARBORETUM AND WILDLIFE REFUGE

FOREST PRODUCTS LABORATORY

C. P. WINSLOW, DIRECTOR

The Forest Products Laboratory is a scientific institution engaged in research for the Forest Service, United States Department of Agriculture, in cooperation with the University of Wisconsin. The final objective of the organization is to guide and stimulate the economic development and maintenance of forests through more efficient utilization leading to profitable markets for forest products. To this end it conducts research on the basic properties of wood and other forest products and on improved methods of production, processing, handling, and use; it cooperates, both in its research and the application of the results, with public and private agencies also interested in the utilization of forest lands. The staff of the laboratory cooperates with that of the University of Wisconsin in the courses of lectures and research outlined below. The laboratory offers unusual facilities for research in the field of forest products and possesses very complete scientific and technical equipment for this purpose. In its investigations it approximates closely commercial conditions and cooperates extensively with the various manufacturing establishments in testing out its research on a commercial basis.

The technical investigations of the laboratory are as follows:

(1) Mechanical Properties of Wood. Investigations of strength, stiffness, hardness, and other mechanical properties of commercial woods; effect of treatments on strength; improvements in structural design and fabrication of wood structures.

(2) Seasoning of Wood. Determination of best methods of air drying and kiln drying to eliminate losses; design and operation of dry kilns; studies of commercial kilns; physical properties of woods; moisture content of wood dwellings.

(3) Shipping Containers. Study of wooden and fiber shipping containers, with special reference to design and specifications to develop containers which will deliver the contents to the consumer in a satisfactory condition at a minimum total cost.

(4) Plywood, Glues, and Laminated Stock. Study of plywood manufacturing problems; strength and design of plywood; development and improvement of glues; study of new uses for laminated construction in commercial work.

(5) By-Products and Chemical Studies. Research in organic, physical and biological chemistry of woods, cellulose, lignin, extractives, and naval stores. Methods of modifying the properties of wood and of converting wood waste into useful commodities; chemistry of wood preservatives.

(6) Wood Preservation. Research on fungi that attack structural timbers, with investigations aimed at practical means of prevention; the efficiency of various wood-preserving processes and preservatives; other processes to modify the properties of wood, such as fire-resistant and anti-shrink treatments; paints and painting practice.

(7) Pulp and Paper. The suitability of woods and other fibrous materials for pulp, paper, and fiber specialties; studies in the chemistry and engineering of pulping and paper-making processes; chemical and physical studies of pulps and papers.

(8) Silvicultural Relations. Identification of wood; the effect of growth conditions on the structure of wood; and the relation of the structure of wood to its properties.

(9) Technical Studies of Wood-Using Industries. Study of the economic utilization of wood with a view to eliminating waste; lumber grades and specifications; methods of measuring, manufacturing, and marketing logs, lumber and small dimension stock; development of efficient uses of wood.

The lectures and research are offered by the staff of the laboratory to both undergraduates and graduates.

STUDENT RESEARCH ASSISTANTSHIPS

Students who show unusual ability in research may be appointed as student research assistants in this laboratory by the Forest Service or by the Bureau of Plant Industry, in accordance with the regulations of the United States Civil Service Commission, at a salary not exceeding $40 per month. Application for these assistantships must be made to the Director of the Forest Products Laboratory. The number of students thus appointed will largely depend upon the funds available and the number of suitable problems taken up by the laboratory for solution. Students may choose one of the problems as major or minor work for a thesis as part of the requirements for a higher degree.

LECTURE AND LABORATORY COURSES

These courses do not supply the needs of students desiring to take up the study of forestry as a profession. Such students should enter one of the regular forestry schools.

FORESTRY AND WOOD TECHNOLOGY

HARRY DONALD TIEMANN, M.E., M.F., *Lecturer in Forest Products*
ELOISE GERRY, Ph.D., *Lecturer in Forest Products*
ARTHUR KOEHLER, M.S., *Lecturer in Forest Products*
LORRAINE JOSEPH MARKWARDT, C.E., *Lecturer in Forest Products*

CLARICE AUDREY RICHARDS, Ph.D., *Lecturer in Forest Products*
THOMAS ROY TRUAX, M.S., *Lecturer in Forest Products*
THOMAS RANDALL CARSON WILSON, C.E., *Lecturer in Forest Products*

1. GENERAL FORESTRY. I; 2 cr. Open to all students with the exception of freshmen in Letters and Science. Study of native trees supplemented by lectures on forest conditions in the United States, its history, conservation, utilization and policy. 11 TT. Mr. Tiemann.

101. PROPERTIES OF WOOD. I; 2 cr. Open to all students. Relation of the structure of wood to its properties. Physical, mechanical, and chemical properties; pulping characteristics; gluing characteristics; relation of defects and fungi to wood properties. Prerequisite: Forestry 1. This course is of particular value to students in architecture, engineering, manual training, and agriculture, and to students desiring to go into the lumber or wood-using industries. May be preceded or followed by Course 102. Offered 1937-38 and in alternate years. 4:30 TT. Mr. Koehler and staff.

102. WOOD TECHNOLOGY. II; 2 cr. Open to students who have a background of elementary physics, mechanics, and general chemistry, including organic chemistry. Wood as a biological product, its anatomy and variations with species; properties and utilization; moisture relations; kiln drying. Inherent physical and chemical nature of cellulosic fibers. 11 TT. Mr. Tiemann.

119. FUNGOUS DETERIORATION OF FOREST PRODUCTS. I; 2 cr. The course is designed to familiarize the student with the fungous defects in wood products. Opportunity is given to study the morphology of the causal organisms, their temperature and moisture relations, and methods of controlling them. The technique of sectioning and staining wood and isolating the causal organisms is included. Not offered 1938-39. Lab. fee $2.25. Lect. and lab. 1:30-5:30 W. Miss Richards.

CHEMISTRY OF FOREST PRODUCTS

ROY HERMAN BAECHLER, Ph.D., *Lecturer in Forest Products*
MARK WILDER BRAY, B.A., M.S., *Lecturer in Forest Products*
FREDERICK LINCOLN BROWNE, Ph.D., *Lecturer in Forest Products*
CARLETON EDGAR CURRAN, Ph.D., *Lecturer in Forest Products*
ELWIN ELMER HARRIS, Ph.D., *Lecturer in Forest Products*
LEE FRED HAWLEY, Ph.D., *Lecturer in Forest Products*
GEORGE MCMONIES HUNT, B.S., *Lecturer in Forest Products*
CLARICE AUDREY RICHARDS, Ph.D., *Lecturer in Forest Products*
GEORGE JOSEPH RITTER, Ph.D., *Lecturer in Forest Products*
EARL CHARLES SHERRARD, Ph.D., *Lecturer in Forest Products*
ALFRED JOAQUIN STAMM, Ph.D., *Lecturer in Forest Products*

103. INDUSTRIAL CHEMISTRY APPLIED TO FOREST PRODUCTS. II; 2 cr. Includes course of lectures descriptive of industrial chemical processes that use wood and wood waste, such as pulp and paper, wood distillation, and wood preservation, and the chemistry of various forest products. Prerequisites: Chemistry 120, 121. Not offered 1938-39. 4:30 TT. Mr. Hawley, Mr. Baechler, Mr. Sherrard, Mr. Ritter, Mr. Curran, Mr. Bray, Mr. Stamm, Mr. Harris.

200. RESEARCH IN FOREST PRODUCTS CHEMISTRY. Yr; *cr. Coal tars, wood tars, and wood preservatives. Mr. Baechler. The chemistry of wood

extractives and wood lignin. Mr. Sherrard, Mr. Harris. General wood chemistry. Mr. Hawley, Mr. Ritter. The chemical action of bacteria and fungi on wood and pulp. Mr. Bray, Miss Richards. Physical and colloidal properties of wood and wood products. Mr. Stamm. Pulp and paper. Mr. Curran, Mr. Bray. Wood preservation and glues. Mr. Hunt, Mr. Browne, Mr. Hall.

STATE LABORATORY OF HYGIENE

W. D. Stovall, Director, Professor of Hygiene

The State Laboratory of Hygiene, located in the Service Memorial Institutes Building on the university campus, is at once a university laboratory and the central laboratory for the State Board of Health. The staff is occupied in teaching, in the development of laboratory tests which are of assistance in the diagnosis and control of communicable diseases, in other laboratory procedures with which sanitary science is concerned, and in special investigation.

Last year 104,655 specimens for the diagnosis of diphtheria, typhoid fever, anthrax, rabies, tuberculosis, whooping cough, and other diseases were received from physicians, health officers, public health nurses, and others throughout the State. The facilities of the laboratory are used by three-fourths of the physicians in the State. Prophylactic vaccines are distributed free from the laboratory, and silver nitrate ampules are prepared for free distribution by the State Board of Health.

For the convenience of physicians and health officers, cooperative laboratories have been established in Beloit, Green Bay, Kenosha, La Crosse, Oshkosh, Rhinelander, Sheboygan, Superior, and Wausau. The State contributes a portion of the funds required for the operation of each of these laboratories, and the respective cities supply the remainder. These branch laboratories are under the supervision of the director of the State Laboratory of Hygiene, acting for the State Board of Health.

The principal work of both the central and the branch laboratories is in the development and improvement of procedures and new methods of diagnosing, preventing, and controlling communicable diseases, and in the dissemination of information of this sort into every community of the State, thereby directly or indirectly touching the welfare of every citizen.

UNITED STATES WEATHER BUREAU

Eric R. Miller, Meteorologist in Charge

The University of Wisconsin has cooperated with the national weather services throughout its history. The first meteorological observations at Madison, covering the period 1853-1864, were made at North Hall by Professors J. W. Sterling and S. H. Carpenter with standard instruments furnished by the Smithsonian Institution. Among the students who aided them are found the names of John Muir, James L. High, and other distinguished alumni. The work came to an end during the Civil War, but was revived in 1869 by Professor W. W. Daniells, pioneer professor of agriculture, who set up instruments at what is now Bascom Hall. The supervision of the net of observers throughout the country was taken over from the Smithsonian Institution by the Chief Signal Officer of the Army in 1874, with whom Daniells cooperated until October, 1878, when an official station, manned by non-commissioned officers, was established in the Brown Block, on the site of the present First Central Building. This government operated station was

discontinued in April, 1883, and its instruments turned over to Washburn Observatory, where an unusually complete program of observations, including continuously recording instruments, was kept up until December, 1904.

In September, 1904, a branch of the Weather Bureau, U. S. Department of Agriculture, to which the meteorological part of the Signal Corps had been transferred in 1891, was established at Madison, in North Hall at the University where the original observations had been begun 51 years earlier. This office is fully equipped with standard apparatus and is manned with professional observers. Reports from other observing stations distributed throughout the United States and Canada are received by teletype, and weather forecasts and bulletins are prepared and distributed through the newspapers, radiophone broadcasting stations, and the mail, to the public in central and southwestern Wisconsin. The office has extensive files of records of weather and climate both local and general. It is open to the public from 9 a.m. to 4 p.m. daily except Sundays, holidays, and Saturday afternoons.

WASHBURN OBSERVATORY

JOEL STEBBINS, DIRECTOR, PROFESSOR OF ASTRONOMY

The Washburn Observatory was established in the year 1878 through the munificence of the late Governor Cadwallader C. Washburn. Although its obligations and opportunities as a branch of a teaching university have not been ignored, the energies of its staff from the beginning have been directed mainly to astronomical research. Among the lines of research cultivated are the measurement of the positions and motions of the heavenly bodies, the discovery and measurement of double stars, with investigations of their orbits, the study of changes of latitude and the amount and character of the atmospheric refraction, the determination of the amount of the aberration of light, proper motions of faint stars, a systematic investigation of the parallaxes of all accessible stars which have large proper motions, the photo-electric photometry of stars, and the determination of absorption in inter-stellar space from the colors of stars.

The principal instrument of the observatory is a refracting telescope of 15.6 inches aperture, constructed by Alvan Clark & Sons, and provided with the usual accessories, also with a photo-electric photometer and a thermionic amplifier. There are also precision clocks by Hohwu and by Howard, and chronographs by Fauth and Gaertner. In accordance with modern practice, the clocks are compared frequently with the radio time signals from Washington.

In the student observatory is a 6-inch refractor formerly the property of the late S. W. Burnham of Chicago. The optical parts are the same as the original telescope but there has been provided a modern mounting. There is also a 3-inch 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. The observatory also possesses a considerable number of subsidiary instruments, such as portable telescopes, photometers, chronometers, sextants, engineers' transits, an altazimuth, a universal instrument, a personal equation machine, calculating machines, photographic and meteorological apparatus, and nautical charts and 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, possesses a large and valuable collection of works upon astronomy and kindred subjects.

The results of important investigations conducted at the Washburn Observatory are published by the State, and fifteen volumes, representing the more important work done, have been issued.

Students of sufficient technical attainment are admitted to the observatory and take part in the investigations in progress. Meritorious original work of such students may be included in the publications of the observatory. For the courses of instruction in astronomy see page 112.

WISCONSIN GEOLOGICAL AND NATURAL HISTORY SURVEY

E. F. BEAN, STATE GEOLOGIST

This Survey has always been closely associated with the University, alike in its inception and operation. Its origin dates from a motion offered by Dr. C. R. Van Hise to the Wisconsin Academy of Sciences in 1893, calling for the appointment of a committee to secure legislation establishing such a survey. The committee, with Dr. Van Hise as chairman, took up the task and finally secured the establishment of the Survey by the legislature of 1897. The president of the University has regularly been the president of the commissioners of the Survey and Dean E. A. Birge was its director from the beginning until 1919, when, as president of the University, he became one of the commissioners. The offices and laboratories of the Survey are in university buildings. In 1931, the Survey was placed under the charge of the board of regents of the University.

The Survey was at first organized in two divisions—Geology and Natural History; the legislature of 1909 added a third division by establishing a Soil Survey of the State. From the first much attention was given to highways, and a Highway Division was organized in 1907; active work in this field was carried on until 1911, when the legislature created the Highway Commission and made the State Geologist one of its members.

The Geology Division was under the charge of Dr. W. O. Hotchkiss from 1906 to 1925; since that date Mr. E. F. Bean has been State Geologist. This is the largest division of the Survey and has issued numerous maps and reports on the general and economic geology of the State. It has investigated also such subjects as water power, underground waters, peat, and clays. Careful surveys are made of materials available for road construction, with a success which has been worth to the State several hundred thousand dollars annually. The study of underground waters has made the Survey an authority on the supply of water from artesian wells. Topographic maps which are necessary for all engineering undertakings have been made in cooperation with the United States Geological Survey. The geography and physical geography of the State have been studied, and numerous bulletins have shown the connection between the geological and the social history of the several regions of Wisconsin.

The Soils Division has carried on a soil survey which will result in a complete soil map of the State. The work, directed by Professor A. R. Whitson, is done in cooperation with the United States Department of Agriculture and the College of Agriculture of the University. Soils are studied with reference to their best agricultural use and the fertilizer and other treatment necessary to make them most productive, including a study of the limestones, marls, and by-products from manufacturing plants available as a source of lime. Special attention is given the adaptability of particular soils to special crops such as potatoes, tobacco, and canning crops. Numerous maps and bulletins showing the nature and distribution of the types of soils and their

agricultural uses have been published. A reconnaissance survey of the northern part of the State has been completed, and detailed county surveys covering a large part of the southern half of the State have been made.

The Natural History Division is under the immediate charge of Dr. Birge, President-Emeritus of the University. It has issued numerous bulletins on specific topics relating to the botany and zoology of the State. Its main continuous work has been on the inland lakes. Many hydrographic maps have been made, as well as studies of the temperatures of the lakes, the chemical composition of their waters, and the plants and animals inhabiting them. The main problem to which all these studies lead is that of the nature and quantity of the fundamental food supply of the lakes, its variation with season and year, and the resulting economic value of the lakes.

During the summer months the Survey employs university students as assistants in field work. This arrangement enables students to gain practical experience during their university careers. The close cooperative relationship existing between the University and the Survey is very valuable to both.

STATE OF WISCONSIN GENERAL HOSPITAL

R. C. Buerki, Superintendent

The State of Wisconsin General Hospital is established in connection with the Medical School of the University of Wisconsin. The University Infirmary and the Mary Cornelia Bradley Memorial Hospital, previously established, are integral parts of the Hospital (Sec. 36.21, Stat. 1923). The Children's Orthopedic Hospital (Sec. 36.32, Stat. 1929) is closely affiliated.

The main hospital building is designed as a memorial to those who served in the World War. It was built and equipped from the balance in the Service Recognition Fund (Chapter 20, Spl. S., 1920).

The chief purposes of the hospital are defined as follows: (1) Primarily for the care of persons afflicted with a malady, deformitory, or ailment of a nature which probably can be remedied by hospital service and treatment, who would be unable otherwise to secure such care. (2) For such instruction of medical students, physicians, and nurses and for such scientific research as will promote the welfare of the patients committed to its care and assist in the application of science to the alleviation of human suffering (Sec. 36.31, Stat. 1923).

In addition, a limited number of patients able to pay for care are also admitted upon reference. The hospital is primarily interested in the type of patient who is unable to pay for hospital care and who can be benefited by care. All types of cases are accepted at the hospital for medical care with the exception of frank pulmonary tuberculosis. These cases, it is felt, can best be treated in the local sanatoria, and as soon as a patient who has been admitted to the hospital is diagnosed as such, he is recommended for transfer. During the last fourteen years over 100,000 different patients coming from all sections of the State have received treatment at the State of Wisconsin General Hospital. The present bed capacity of the hospitals is over 600.

The new Orthopedic Hospital has increased the number of orthopedic patients that can be hospitalized at the University. In this unit adequate facilities are provided not only for the actual medical and surgical care necessary but also classroom space for general education and occupational therapy. The hospital cooperates with the local schools for crippled children throughout the State by returning the patient to his community as early as possible, thereby reducing the cost of care to both State and county.

WISCONSIN PSYCHIATRIC INSTITUTE

W. F. Lorenz, Director, Professor of Neuropsychiatry

The Wisconsin Psychiatric Institute was originally developed under the Board of Control of the State of Wisconsin. It was started in 1915 at Mendota, but on July 1, 1925, was transferred by legislative act to the University. Its principal purpose is to investigate causes of insanity and allied conditions which directly or indirectly result in state care and, in addition, to initiate and promote measures of relief and prevention when practically possible.

As the result of an investigation started in 1915, syphilis was found to be a large single factor in causing both insanity and mental enfeeblement. In an effort to meet this situation in a practical way, an attempt was made to assist the physicians throughout the State to recognize and thoroughly treat syphilis with the hope of preventing the late consequences of this disease. A blood-examining service was instituted and made available, without cost to physicians of Wisconsin. Since 1915, over 1,000,000 individual tests have been made for practicing physicians and state institutions. The results of this effort account, in great measure, for the reduction of paresis in Wisconsin. This is shown by the admission rate to state hospitals, for while in 1915, and previously, the admission rate for this form of insanity was over 12%, since 1924 it has continued at less than 5%.

The advent of the recent federal program to reduce the incidence of syphilis and to eradicate the ravages of this disease, presented a challenge to the Psychiatric Institute. This has resulted in increase in the laboratory facilities and new research has been instituted, resulting in adding to the Wassermann test the more recently developed flocculation methods of testing for syphilis. In addition, quantitative blood tests have been made available to assist physicians in following more accurately the results of treatment. In the past, emergency life saving blood transfusions have been given without the benefits of the knowledge of the absence of syphilis in the donor due to the length of time necessary for the performance of the routine blood test. The Institute has now made available a rapid test requiring only twenty minutes for its performance. The Institute laboratories will furnish the materials necessary for this test to hospitals throughout the state and technicians from these institutions will be given instructions in the performance of this test by the staff of the Psychiatric Institute.

The enactment of statute 245.10 by the Wisconsin Legislature requiring antenuptial physical examination and blood test for syphilis upon both parties anticipating marriage resulted in a tremendous increased load of routine blood testing, necessitating increasing both the technical and clerical facilities in the Institute. In the first eight months following enactment of this law, 18,000 antenuptial Wassermanns have been performed, of which 160 were positive.

In addition, cerebro-spinal fluid is examined without charge for practicing physicians of Wisconsin, and, since 1925, chemical blood examinations have been added as a service to physicians. This latter effort was made possible as the result of an extensive investigation from which was developed a blood preservative that permits shipment of this material by mail without deterioration. Since 1925, over 188,878 blood specimens have been received for this examination.

All the laboratory work combined makes available to practicing physicians highly specialized laboratory procedures which are valuable aids to him in recognizing and treating diseases and, incidentally, because the effort is

centralized, it promotes technical efficiency and is most economical.

The Institute also serves the State Board of Control as a special institution for the investigation of medical and medico-social problems arising in the administration of the state charitable and penal institutions. The Director of the Institute serves as a medical consultant to the Board of Control.

The medical personnel of the Institute comprises the staff of the Department of Neuropsychiatry in the Medical School of the University. Its five members administer this department in the State of Wisconsin General Hospital and teach nervous and mental diseases to medical students. For this purpose it has available 50 beds in the Bradley Memorial Hospital. During the year ending December, 1937, there were admitted approximately 1000 patients covering a wide range of cases and including practically every known variety of mental and nervous disorder. It is a notable feature that whereas the mental cases have constituted about 30% of the total cases, the incidence of the former is increasing. The neurological cases afford ample material for study of central nervous system syphilis including congenital cases: encephalitis, brain tumor, and among the less common disorders, pellagra, Huntington's chorea, myasthenia gravis, and myopathies. Owing to the practice of bedside instruction which each medical student gets, this volume and variety offers an unusual opportunity for clinical instruction. It also provides that which few general hospitals offer—training in this specialty for nurses, internes, and resident physicians. This department has recently added two psychiatrists to the staff, bringing the number of staff members to seven.

A service which this department affords the community is developing into unusual proportions. Through the outpatient department there has been an increasing demand for guidance in cases of conduct disorder. From the criminal and juvenile courts, the Juvenile Protective Association, the Family Welfare Association, the Children's Home Finding Society, and the Public Health Nursing Association are referred many behavior problems. This service is being extended to other communities outside of Madison.

Consultation service, in not only psychiatry but in neurology also, is extended to all departments of the State of Wisconsin General Hospital.

The wealth of material in nervous and mental diseases offers many problems for clinical investigation and definite contributions have been made, particularly in the field of therapy. Reports have been made on some of these studies; others are pending. Encephalography has been developed to a high state of perfection both as to technical detail and clinical application and is available to the residents and physicians of the State.

STATE HISTORICAL SOCIETY

JOSEPH SCHAFER, SUPERINTENDENT

This Society, organized in the early part of 1849, in the course of its nearly ninety years of activity, has attained an enviable position among the educational institutions of the State and nation. The Society maintains in its building on the campus of the University the State Historical Library containing 300,000 volumes and 322,000 pamphlets; also the Historical Museum on the fourth floor of the library building; and an active research and publications staff dealing with Wisconsin history. Its publications include the *Wisconsin Magazine of History,* a quarterly now in its twenty-first volume; *Wisconsin Historical Collections,* of which thirty-one volumes have been issued in addition to a general index of volumes I-XX; the *Proceedings,* separate annual publications containing reports with occasional historical papers; *Bulletins of Information* numbers 1-98; *The*

Calendar Series of which three volumes of calendars of the Draper papers have been published; *An Economic History of Wisconsin* by Frederick Merk; *The Wisconsin Domesday Book, General Series,* Volumes I to IV, *Schafer and Town Studies,* Volume I; *Schafer Wisconsin History Series, The French Regime in Wisconsin and the Northwest,* Kellogg; *The British Regime in Wisconsin and the Northwest,* Kellogg; *Wisconsin Gold Star List,* Gregory; *Carl Schurz, Militant Liberal* (biography), Schafer.

The State Historical Library is unequaled in the field of Middle Western history and has one of the most important newspaper and periodical collections in the United States. In local history, biography, American travels, etc., it is exceptionally well equipped. The printed colonial records and government documents, state and federal, are equally satisfactory. For the study of upland Virginia, North and South Carolina, and Georgia, as well as Kentucky and Tennessee and the old Northwest, in the Colonial and Revolutionary period, the Draper manuscripts in this library are the richest collection extant. Resources for the study of the slavery question and the Civil War are notable, and there is a vast amount of manuscript material on Western economic history, particularly the trade in lumber and furs. A collection of immigrant letters is forming.

For English history and government, the library has the usual sets of official publications, including the Rolls Series, the Calendars of State Papers, the Blue Books, the reports of the Historical Manuscripts Commission, and other reports of the Records Commission; also the parliamentary proceedings, and the publications of many historical societies. For the study of Dutch history and institutions the Tank collection offers special resources.

This library contains one of the three greatest collections of newspapers in the United States, and it has the fullest files of labor papers to be found anywhere in the country. It is the custodian of the extensive collection of labor and employers' papers, convention proceedings, agreements, etc., secured through the American Bureau of Industrial Research.

WISCONSIN ACADEMY OF SCIENCES, ARTS, AND LETTERS

LOYAL DURAND, JR., SECRETARY, ASSISTANT PROFESSOR OF GEOGRAPHY

The Wisconsin Academy of Sciences, Arts, and Letters was incorporated by legislative authority on March 16, 1870 for a twofold purpose: (1) to serve as a means of communication between societies and individuals who are engaged in the various fields of research and (2) to publish the results of these investigations. The former object is attained by annual meetings, held ordinarily during the spring recess of the University either in Madison or in one of the other educational centers of the State; the latter by the publication of its *Transactions.* In the sixty-six years of its existence the Academy has published thirty-one volumes of its *Transactions,* besides several *Bulletins.* These publications are sent not only to the active members of the Academy but also, on an exchange basis, to similar societies in all parts of the world. In this manner a valuable library of approximately six thousand volumes has been secured. It is deposited in the university library. Its books are loaned on the same terms as those of the latter.

Throughout its existence the Academy has been closely associated with the University in various ways. Several of the leading charter members belonged to the university faculty, and a large percentage of the past and present active members have come from the faculty of the University. Eleven

of the twenty-three individuals who have served as presidents of the Academy were members of the university faculty at the time of their election.

The Academy is affiliated with the American Association for the Advancement of Science.

MUSEUMS

The museums of the University are principally illustrative collections for use in connection with the work of instruction in the various departments. Worthy of special mention are the collection of chemical products; the extensive drug collection of the Pharmacy Department; the herbarium, containing a rich array of Wisconsin flowering plants, fleshy fungi, and mosses; the geological museum, containing very extensive collections of minerals, rocks, ores, and fossils, including thin sections; and the valuable collections of the Department of Art History and Criticism, which embraces a series of prints illustrating the development of the graphic arts and a very large number of facsimile and photographic reproductions of paintings and drawings by artists of all periods.

The State Historical Museum which, though not administered by the University, is open to the use of its students for purposes of study and research, makes a specialty of the archaeology and social history of the western Indians and of the western pioneer life, especially in Wisconsin, and is notable for its collections illustrating the early history of the upper Mississippi valley. The art collections contain modern pictures of merit, a collection of Piranesi etchings of classical ruins, and a collection of good prints and reproductions valuable for study.

ARBORETUM AND WILD LIFE REFUGE

G. Wm. Longenecker, Executive Director

Aldo Leopold, Research Director

The University Arboretum and wildlife refuge is a tract of over 900 acres of land on the shore of Lake Wingra, on the outskirts of Madison. Its purpose is to serve the University as an outdoor laboratory for the study of plants, birds, mammals, insects, aquatic life, soils, and their interrelationships in nature. It is the intention to reconstruct on the Arboretum, examples of the original plant and animal communities native to Wisconsin. These communities will include a large area of prairie, the principal types of forest, and the principal types of marshland. Several outstanding forest types from other places in the country are contemplated. The varied topography and soil lends itself readily to these objects.

The Arboretum is being used for research and outdoor laboratory purposes by students of Botany, Zoology, Entomology, Soils, Landscape Design, Game Management, and Civil Engineering. A faculty committee headed by Prof. E. M. Gilbert administers the area.

The Arboretum and Wildlife Refuge was created to preserve and restore at a point near the University, types of primitive Wisconsin landscape and its flora and fauna. It is for the study of plants and animals as individuals and as groups, particular emphasis being made on ecological relationships. Some of the ecological types being preserved and established are: Balsam, Black Spruce, Hard Maple, Beech, Hemlock Ravine, Jack Pine, Juniper Hillside, Oak, Hickory, Marsh, Prairie, Prairie Margin, Red Pine, White Pine,

Tamerack Bog, White Birch, and White Spruce. Land is also set aside for displaying and testing horticultural material and for experimentation with nut bearing plants.

A generous amount of labor for planting and construction work was furnished by the Civil Works Administration in 1933-34, by the United States Transit Bureau in 1934-35, and in later years by a National Park Civilian Conservation Corp unit which took over the camp in 1935. Roads and parking areas have been built and two stone shelters have been completed. A series of Indian effigy mounds have been repaired and restored. Dog-tight fences have been completed around test areas. An aquatic garden is being developed; pools have already been constructed. Fourteen acres of lagoons with controlled water levels for shore bird studies have been completed. Three prairie nurseries have been planted in the prairie area and several acres have been seeded to prairie materials by the seed spot method. A series of game bird food plots have been planted in order to obtain information regarding the food habits of upland game birds. Currant and gooseberry bushes have been removed to protect the White Pine plantings and Lake Wingra has been seined for carp.

PART X—STATISTICAL TABLES

DEGREES ACCORDING TO COURSES

	1854–1937	1937
NUMBER OF FIRST DEGREES GRANTED 1854-37	38,488	1,479
Present Courses		
General Course, B.A., 1904-1937	13,223	460
Course in Commerce, B.A., 1904-1937	2,438	60
Course in Journalism, B.A., 1914-1937	923	56
Course in Humanities, B.A., 1922-1937	82	1
Course in Classical Humanities, B.A., 1934-1937	8	5
Course in Commerce, Ph.B., 1932-1937	107	35
General Course, Ph.B., 1917-1937	1,150	121
Chemistry Course, B.S., 1909-1937	545	39
Chemistry-Commerce Course, B.S., 1927-37	47	1
Medical Science Course, B.S., 1909-1937	947	46
Hygiene Course, B.S., 1927-1937	61	5
Pharmacy Course, B.S., 1895-1937	237	29
Music Course, B.M., 1917-1937	371	27
Art Education Course, B.S., 1922-1937	441	24
Education Course, B.S., 1932-1937	813	100
Physical Education Course, B.S., 1920-1937	556	44
Four-Year Course in Agriculture, B.S., 1878-1937	1,973	54
Four-Year Course in Agriculture and Education, B.S., 1932-1937	73	14
Home Economics Course, B.S., 1909-1937	1,365	53
Home Economics and Education Course, B.S., 1932-1937	169	32
Two-Year Course in Agriculture, 1910-1937	252*	0
Law Course, LL.B., 1869-1937	3,365	119
Civil Engineering Course, B.S., 1876-1937	1,405	40
Mechanical Engineering Course, B.S., 1876-1937	1,219	48
Electrical Engineering Course, B.S., 1892-1937	1,547	25
Chemical Engineering Course, B.S., 1903-1937	586	32
Mining Engineering Course, B.S., 1910-1937	165	3
Metallurgical Engineering Course, B.S., 1930-1937	25	6
Courses Discontinued		
Ancient Classical Course, B.A., 1854-1903	470	
Modern Classical Course, B.L., 1886-1903	548	
English Course, B.L., 1887-1903	459	
Civil Historical Course, B.L., 1893-1903	383	
General Science Course, B.S., 1886-1903	722	
Geology Course, B.S., 1914	1	
Three-Year Pharmacy Course, Ph.G., 1884-1935	557	
School of Music, M.G., 1898-1916	134	
School of Commerce (B.L., 8; B.S. 1) 1902-1903	9	
Normal Course, 1865-1868	25	
Normal Course, Ph.B., 1898-1932	1,151	
Metallurgical Engineering Course, B.M.E., 1876-1896	16	
General Engineering Course, B.S., 1901-1910	96	
Manual Arts Course, B.S., 1921	2	
Industrial Education Course, B.S., 1922-1933	74	
Two-Year Course in Home Economics, Ag.G., 1920-1922	8*	
Two-Year Course for Supervisors of Music, 1910-1925	173*	
Three-Year Course for Supervisors of Music, 1925	4*	

*Not included in totals because not considered as degrees.

	1854-1937	1937
NUMBER OF HIGHER DEGREES GRANTED IN COURSE, 1875-1937	10,537	576
Master of Arts, M.A., 1879-1937	4,227	183
Master of Letters, M.L., 1882-1903	97	
Master of Science, M.S., 1882-1937	2,051	84
Master of Science, Engineering, M.S., 1922-1937	311	20
Engineer, 1875-1937	483	8
Master of Agriculture, M.Agr., 1893	1	
Master of Pharmacy, M.Phar., 1894 and 1902	2	
Master of Philosophy, M.Ph., 1902-1937	708	101
Master of Public Health, M.P.H., 1915-1916	4	
Doctor of Public Health, D.P.H., 1912-1915	2	
Doctor of Philosophy, Ph.D., 1892-1937	2,160	129
Doctor of Medicine, M.D., 1927-1937	480	48
Doctor of Juridical Science, S.J.D., 1934-1937	11	3

KIND OF DEGREES

Number of First Degrees Granted, 1854-1937		38,488
Bachelor of Arts, 1854-1937	17,144	
Bachelor of Philosophy, 1898-1937	2,408	
Bachelor of Letters, 1876-1903	1,398	
Bachelor of Science, 1873-1937	13,070	
Bachelor of Metallurgical Engineering, 1876-1896	16	
Bachelor of Laws, 1869-1937	3,365	
Bachelor of Music, 1917-1937	371	
Graduate in Music, 1896-1916	134	
Normal Course, 1865-1868	25	
Graduate in Pharmacy, 1884-1935	557	
Graduate in Agriculture (Two-Year Course), 1910-1936	260*	
Music Supervisor, 1910-1925	177*	
Number of Higher Degrees Granted in Course, 1875-1937		10,537
Masters, 1879-1937	7,401	
Engineer, 1875-1937	483	
Doctor of Public Health, 1912-1915	2	
Doctor of Philosophy, 1892-1937	2,160	
Doctor of Medicine, 1927-1937	480	
Doctor of Juridical Science, 1934-1937	11	
Grand Total of First and Higher Degrees Granted, 1854-1937		49,025

HONORARY DEGREES

	1856–1937	1937
Doctor of Letters, 1910-1937	29	1
Doctor of Laws, 1866-1937	151	3
Doctor of Science, 1910-1937	34	1
Doctor of Philosophy, 1883-1887	4	
Doctor of Medicine, 1856	1	
Doctor of Music, 1934	1	
Master of Arts, 1867-1937	35	1
Master of Science, 1877	1	
Civil Engineer, 1877-1915	4	
Mechanical Engineer, 1898-1928	2	
Bachelor of Arts, 1885	1	
Bachelor of Mechanical Engineering, 1887	1	
	264	6

*Not included in totals because not considered as degrees.

SUMMER SESSION, 1937

	GRADUATES												UNDER-GRADUATES			GRAND TOTAL		
	Six-Week Session			Nine-Week Session			Not Registered in Graduate School			Total Graduates								
	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total
Letters and Science*	348	497	845	117	88	205	118	208	326	583	793	1,376	583	794	1,377	1,166	1,587	2,753
Engineering	8	0	8	0	0	0	0	0	0	8	0	8	153	0	153	161	0	161
Agriculture	46	66	112	4	0	4	2	38	40	52	104	156	61	95	156	113	199	312
Education	242	221	463	136	34	170	35	136	171	413	391	804	31	242	273	444	633	1,077
Medicine													86	7	93	86	7	93
Law													150	6	156	150	6	156
GRAND TOTAL	644	784	1,428	257	122	379	155	382	537	1,056	1,288	2,344	1,064	1,144	2,208	2,120	2,432	4,552
Deducting students in attendance during the regular years:																		
Letters and Science*	73	33	106	27	9	36	8	0	8	108	42	150	317	162	479	425	204	629
Engineering	0	0	0	0	0	0	0	0	0	0	0	0	128	0	128	128	0	128
Agriculture	20	9	29	2	0	2	0	2	2	22	11	33	24	56	80	46	67	113
Education	13	7	20	13	7	20	2	2	4	28	16	44	13	43	56	41	59	100
Medicine													27	1	28	27	1	28
Law													78	1	79	78	1	79
Total Deducted	106	49	155	42	16	58	10	4	14	158	69	227	587	263	850	745	332	1,077
NET TOTAL	538	735	1,273	215	106	321	145	378	523	898	1,219	2,117	477	881	1,358	1,375	2,100	3,475

*Includes Commerce, Journalism, Music, Nursing and Industrial Workers.

SUMMARY OF STUDENTS
ACADEMIC
MAY

Division	Men	Women	Total	Men	Women	Total	Men
GRADUATE SCHOOL		Fellows			Scholars		Other
1. Letters and Science[1]	49	14	63	39	24	63	633
2. Engineering	4	0	4	3	0	3	42
3. Agriculture	36	3	39	15	2	17	181
4. Home Economics	0	1	1	0	0	0	0
5. School of Education	1	0	1	0	2	2	85
6. Total Grad. School (1-5 incl.)	90	18	108	57	28	85	941
PROFESSIONAL SCHOOLS		Fourth Year			Third Year		
7. Law[2]	3	0	3	127	1	128	124
8. Medicine	49	4	53	49	2	51	90
UNDERGRADUATES		Seniors			Juniors		
College of Letters and Science Courses							
9. B.A. Course	338	258	596	287	272	559	480
10. Ph.B. Course	201	14	215	166	20	186	335
11. B.S. Course	51	2	53				
12. Chemistry	53	3	56	51	1	52	56
13. Humanities	1	2	3	0	3	3	4
14. Classical Humanities	1	1	2	0	2	2	0
15. Hygiene	0	16	16	0	27	27	0
16. Medical Technology	0	2	2	0	2	2	0
17. Pharmacy	27	7	34	16	4	20	22
18. Premedical	11	3	14	107	7	114	119
Schools							
19. Commerce—B.A.	135	26	161	128	22	150	
20. Commerce—Ph.B.	91	1	92	103	4	107	
21. Journalism	56	34	90	49	36	85	
22. Music	10	20	30	13	22	35	19
23. Total Letters & Science(9-22 Incl.)	975	389	1,364	920	422	1,342	1,035
College of Engineering							
24. Chemical	37	0	37	66	0	66	79
25. Civil	50	1	51	65	0	65	57
26. Electrical	72	0	72	70	0	70	85
27. Mechanical	86	0	86	103	0	103	124
28. Mining and Metallurgical	20	0	20	21	0	21	27
29. Total Engineering (24-28 incl.)	265	1	266	325	0	325	372
College of Agriculture							
30. Long Course—4 yrs.	136	2	138	127	1	128	204
31. Middle Course—2 yrs.							4
32. Home Economics	0	115	115	0	118	118	0
33. Total Agric. (30-32 incl.)	136	117	253	127	119	246	208
School of Education[3]							
34. *Teachers Certificates only*[4]							
35. Academic Fields	60	118	178	46	104	150	
36. Art Education	11	22	33	13	35	48	13
37. Physical Education	25	27	52	17	29	46	24
38. Total Educ. (35-37 incl.)	96	167	263	76	168	244	37
School of Nursing							
39. *Hygiene Course*[4]	*0*	*16*	*16*	*0*	*27*	*27*	*0*
40. Graduate Nurse				0	30	30	0
41. *Total Nursing (39-40)*[4]	*0*	*16*	*16*	*0*	*57*	*57*	*0*
42. **Library School**	2	5	7				
43. Physiotherapy				0	0	0	1
44. Total Undergraduates (23, 29, 33, 38, 40, 42, 43)	1,474	679	2,153	1,448	739	2,187	1,653
45. Grand Total							
46. Less twice-counted (Law, Medicine, Graduate Nurse, Library School, and Senior Graduates)							
47. Net Grand Total							

[1]Includes 1 Music Fellow (Woman), 1 Music Scholar (Woman), and 14 Music Graduates (4 Men and 10 Women)
[2]Includes 3 Law Fellows tabulated under fourth year.
[3]For total enrolment in the School of Education see table page 00.
[4]Figures in italics are not carried into totals because already included in table.

BY CLASSES, COURSES AND SEX

YEAR, 1937-38

1, 1938

Women	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total	Item
Graduates									Totals		
199	832							721	237	958	1
0	42							49	0	49	2
11	192							232	16	248	3
23	23							0	24	24	4
57	142							86	59	145	5
290	1,231							1,088	336	1,424	6
Second Year		First Year			Specials						
7	131	128	6	134	7	1	8	389	15	404	7
6	96	81	6	87				269	18	287	8
Sophomores		Freshmen			Adult Specials and Unclassified						
435	915	584	495	1,079	4	1	5	1,693	1,461	3,154	9
30	365	385	43	428	3	0	3	1,090	107	1,197	10
								51	2	53	11
2	58	75	8	83	0	0	0	235	14	249	12
3	7	1	4	5	0	0	0	6	12	18	13
5	5	0	1	1	0	0	0	1	9	10	14
35	35	0	61	61	0	0	0	0	139	139	15
7	7	0	5	5	0	0	0	0	16	16	16
4	26	26	2	28	0	0	0	91	17	108	17
18	137	140	25	165	1	0	1	378	53	431	18
								263	48	311	19
								194	5	199	20
								105	70	175	21
31	50	26	33	59	5	4	9	73	110	183	22
570	1,605	1,237	677	1,914	13	5	18	4,180	2,063	6,243	23
0	79	88	0	88	0	0	0	270	0	270	24
1	58	73	0	73	0	0	0	245	2	247	25
0	85	98	0	98	0	0	0	325	0	325	26
1	125	177	0	177	0	0	0	490	1	491	27
0	27	20	0	20	0	0	0	88	0	88	28
2	374	456	0	456	0	0	0	1,418	3	1,421	29
1	205	225	1	226	0	0	0	692	5	697	30
0	4	5	0	5	0	0	0	9	0	9	31
135	135	0	136	136	0	0	0	0	504	504	32
136	344	230	137	367	0	0	0	701	509	1,210	33
								81	*126*	*207*	34
								106	222	328	35
29	42	9	42	51	0	0	0	46	128	174	36
41	65	41	42	83	0	0	0	107	139	246	37
70	107	50	84	134	0	0	0	259	489	748	38
35	*35*	*0*	*61*	*61*	*0*	*0*	*0*	*0*	*139*	*139*	39
20	20	0	23	23	0	0	0	0	73	73	40
55	*55*	*0*	*84*	*84*	*0*	*0*	*0*	*0*	*212*	*212*	41
					6	30	36	8	35	43	42
1	2	0	0	0	0	0	0	1	1	2	43
799	2,452	1,973	921	2,894	19	35	54	6,567	3,173	9,740	44
								8,313	3,542	11,855	45
								267	36	303	46
								8,046	3,506	11,552	47

ADDITIONAL ENROLMENT—COLLEGE OF AGRICULTURE

	Men	Women	Total
Short Courst			
Second Year	175	1	176
First Year	170	1	171
Total Short Course	345	2	347
Winter Dairy Course	45	0	45
Total Short and Dairy Courses	390	2	392

NET ENROLMENT—REGULAR YEAR, SUMMER SESSION, AND SHORT AND DAIRY COURSES

	Men	Women	Total
Regular Year	8,046	3,506	11,552
Summer Session	1,375	2,100	3,475
Short and Dairy Courses	390	2	392
GRAND NET TOTAL, Excluding Extension Students	9,811	5,608	15,419

EXTENSION DIVISION (Extra-Mural College)

	Men	Women	Total
Correspondence Study Department	4,171	2,411	6,582*
Extension Classes	5,631	3,871	9,502**
Milwaukee Center (Resident Students)	638	173	811

*This total enrolment comprises those who have enrolled for correspondence within the fiscal year up to April 1, 1938 and also those carried over who had enrolled prior to July 1, 1937, but whose registrations were then in force and whose time limit had not yet terminated. Correspondence-study enrolments are made at any time in the year.

**Extension classes include registrations to April 1, 1938.

SCHOOL OF EDUCATION 1937-38

TEACHERS' CERTIFICATES	Men	Women	Total
Graduates			
Letters and Science	17	9	26
Home Economics	0	2	2
Seniors			
Chemistry Course	2	1	3
Course in Humanities	0	3	3
School of Commerce, B.A.	1	3	4
School of Journalism	2	1	3
School of Music	7	12	19
Agriculture, Long Course	26	0	26
Home Economics	0	40	40
Juniors			
Chemistry Course	2	0	2
Course in Humanities	0	3	3
School of Commerce, B.A.	1	1	2
School of Journalism	0	3	3
School of Music	7	14	21
Agriculture, Long Course	16	0	16
Home Economics	0	34	34
Total Teachers' Certificates	81	126	207
COURSES			
Graduates	86	59	145
Academic Fields	106	222	328
Art Education	46	128	174
Physical Education	107	139	246
Total Courses	345	548	893
GRAND TOTAL, Teachers' Certificates and Courses	426	674	1,100

TWICE COUNTED STUDENTS 1937-38

The item of 303 twice counted occurs because of double classification as follows:

	Men	Women	Total
Law Special 1 and B A 4	1	0	1
Law Special 1 and B A 3	0	1	1
Law Special 1 and Ch C 3	1	0	1
Law 1 and L S Grad	2	0	2
Law 1 and E Grad	1	0	1
Law 1 and B A 4	45	1	46
Law 1 and Ph B 4	22	0	22
Law 1 and S C 4	4	0	4
Law 1 and S C (Ph B) 4	2	0	2
Law 2 and L S Grad	2	0	2
Law 2 and B A 4	11	0	11
Law 2 and Ph B 4	13	0	13
Law 3 and B A 4	6	0	6
Law 3 and Ph B 4	9	0	9
Law 3 and S C 4	2	0	2
Totals	121	2	123
Med 1 and L S Scholar	1	0	1
Med 1 and L S Grad	15	0	15
Med 1 and B A 4	34	6	40
Med 1 and B S 4	13	0	13
Med 2 and L S Grad	5	2	7
Med 2 and B S 4	38	2	40
Med 3 and L S Grad	5	0	5
Totals	111	10	121
L S Grad and B A 4	10	5	15
L S Grad and Ph B 4	2	0	2
L S Grad and C H 4	1	0	1
L S Grad and Ph C 4	1	0	1
L S Grad and S C 4	0	1	1
L S Grad and S C (Ph B) 4	1	0	1
M Grad and M 4	1	1	2
Ed Grad and S Ed 4	3	6	9
Ed Grad and Art Ed 4	1	1	2
Ed Grad and P Ed 4	1	1	2
E Grad and M E 4	4	0	4
A Grad and A 4	8	0	8
H E Grad and H E 4	0	2	2
Totals	33	17	50
Gr N 2 and L S Grad	0	1	1
Gr N 3 and L S Grad	0	1	1
Totals		2	2
W L S and B A 4	2	5	7
	2	5	7
GRAND TOTAL (Including Senior Grads)	267	36	303

SPECIAL STUDENTS 1937-38

	Unclassified			Adult Specials									Total		
				3rd Year			2nd Year			1st Year					
	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total
College of Letters and Science															
B. A. Course							1	0	1	3	1	4	4	1	5
Ph.B. Course				1	0	1	1	0	1	1	0	1	3	0	3
Premedical Course							1	0	1	0	0	0	1	0	1
Music	2	4	6				1	0	1	2	0	2	5	4	9
Library School	6	30	36										6	30	36
Totals	8	34	42	1	0	1	4	0	4	6	1	7	19	35	54

SUMMARY OF STUDENTS BY STATES, FOREIGN COUNTRIES, AND SEX

Regular Year, Summer Session only, Short and Dairy Courses, 1937-38

	Total			Regular Year			Summer Session only			Short and Dairy Courses		
	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total
Alabama	7	13	20	5	3	8	1	10	11	1	0	1
Arizona	7	5	12	5	3	8	2	2	4	0	0	0
Arkansas	9	9	18	5	1	6	4	8	12	0	0	0
California	12	15	27	10	8	18	2	7	9	0	0	0
Colorado	16	6	22	11	4	15	5	2	7	0	0	0
Connecticut	21	9	30	14	4	18	7	5	12	0	0	0
Delaware	1	3	4	1	1	2	0	2	2	0	0	0
District of Columbia	13	12	25	8	4	12	5	8	13	0	0	0
Florida	15	13	28	8	7	15	7	6	13	0	0	0
Georgia	13	7	20	9	2	11	4	5	9	0	0	0
Idaho	12	1	13	11	0	11	1	1	2	0	0	0
Illinois	397	513	910	210	200	410	167	313	480	20	0	20
Indiana	102	125	227	39	22	61	61	103	164	2	0	2
Iowa	50	106	156	28	30	58	20	76	96	2	0	2
Kansas	27	64	91	8	10	18	19	54	73	0	0	0
Kentucky	31	20	51	13	6	19	18	14	32	0	0	0
Louisiana	11	12	23	6	1	7	5	11	16	0	0	0
Maine	4	0	4	3	0	3	1	0	1	0	0	0
Maryland	7	27	34	6	9	15	1	18	19	0	0	0
Massachusetts	37	29	66	27	22	49	9	7	16	1	0	1
Michigan	68	110	178	39	25	64	29	85	114	0	0	0
Minnesota	41	67	108	20	28	48	20	39	59	1	0	1
Mississippi	19	14	33	9	1	10	10	13	23	0	0	0
Missouri	65	103	168	24	29	53	41	74	115	0	0	0
Montana	5	7	12	3	4	7	2	3	5	0	0	0
Nebraska	26	30	56	12	12	24	14	18	32	0	0	0
Nevada	1	0	1	0	0	0	1	0	1	0	0	0
New Hampshire	4	6	10	3	3	6	1	3	4	0	0	0
New Jersey	65	52	117	58	29	87	7	23	30	0	0	0
New Mexico	4	1	5	2	1	3	2	0	2	0	0	0
New York	237	179	416	203	112	315	34	67	101	0	0	0
North Carolina	16	5	21	9	4	13	6	1	7	1	0	1
North Dakota	21	17	38	11	7	18	10	10	20	0	0	0
Ohio	110	191	301	48	66	114	57	125	182	5	0	5
Oklahoma	27	33	60	16	14	30	10	19	29	1	0	1
Oregon	6	3	9	4	2	6	1	1	2	1	0	1
Pennsylvania	61	103	164	35	35	70	26	68	94	0	0	0

Rhode Island	1	7	8	1	1	2	0	6	6	0	0	0
South Carolina	8	8	16	4	1	5	4	7	11	0	0	0
South Dakota	28	26	54	17	7	24	10	19	29	1	0	1
Tennessee	13	27	40	5	10	15	8	17	25	0	0	0
Texas	35	30	65	19	7	26	16	23	39	0	0	0
Utah	25	14	39	18	5	23	7	9	16	0	0	0
Vermont	5	3	8	3	0	3	2	3	5	0	0	0
Virginia	7	17	24	2	8	10	5	9	14	0	0	0
Washington	9	6	15	7	2	9	2	4	6	0	0	0
West Virginia	17	17	34	11	2	13	6	15	21	0	0	0
Wisconsin	7,983	3,508	11,491	6,948	2,737	9,685	682	769	1,451	353	2	355
Wyoming	3	1	4	3	0	3	0	1	1	0	0	0
Total United States	9,702	5,574	15,276	7,961	3,489	11,450	1,352	2,083	3,435	389	2	391
Outlying Territories & Foreign Countries												
Hawaii	7	1	8	6	0	6	1	1	2	0	0	0
Canal Zone	2	0	2	1	0	1	0	0	0	1	0	1
Philippine Islands	5	0	5	4	0	4	1	0	1	0	0	0
Puerto Rico	3	1	4	3	0	3	0	1	1	0	0	0
Virgin Islands	1	0	1	1	0	1	0	0	0	0	0	0
Argentina	3	2	5	3	0	3	0	2	2	0	0	0
Australia	2	0	2	2	0	2	0	0	0	0	0	0
Austria	1	0	1	1	0	1	0	0	0	0	0	0
Belgium	2	0	2	2	0	2	0	0	0	0	0	0
British West Indies	1	0	1	1	0	1	0	0	0	0	0	0
Canada	40	19	59	28	9	37	12	10	22	0	0	0
China	24	4	28	16	3	19	8	1	9	0	0	0
Costa Rico	0	1	1	0	1	1	0	0	0	0	0	0
Cuba	1	0	1	1	0	1	0	0	0	0	0	0
Czechoslovakia	0	1	1	0	1	1	0	0	0	0	0	0
England	3	1	4	2	1	3	1	0	1	0	0	0
France	0	1	1	0	0	0	0	1	1	0	0	0
Germany	1	1	2	1	1	2	0	0	0	0	0	0
Iraq	1	0	1	1	0	1	0	0	0	0	0	0
Japan	1	0	1	1	0	1	0	0	0	0	0	0
Mexico	2	0	2	2	0	2	0	0	0	0	0	0
Netherlands	0	1	1	0	1	1	0	0	0	0	0	0
Peru	1	0	1	1	0	1	0	0	0	0	0	0
Siam	1	0	1	1	0	1	0	0	0	0	0	0
South Africa	1	0	1	1	0	1	0	0	0	0	0	0
Sweden	1	1	2	1	0	1	0	1	1	0	0	0
Turkey	5	0	5	5	0	5	0	0	0	0	0	0
TOTAL FOREIGN	109	34	143	85	17	102	23	17	40	1	0	1
TOTAL UNITED STATES	9,702	5,574	15,276	7,961	3,489	11,450	1,352	2,083	3,435	389	2	391
TOTAL FOREIGN	109	34	143	85	17	102	23	17	40	1	0	1
GRAND TOTAL	9,811	5,608	15,419	8,046	3,506	11,552	1,375	2,100	3,475	390	2	392

INDEX

Academic requirements, 9
Academic year, calendar of, viii, ix
Accounting, instruction in, 85, 124
Accredited high schools, 38
Administrative officers, xi

Admission
- Adult special students, 41
- Advanced standing, 41, 56
- By certificate from high school, 38
- Examinations for, 40
- Foreign language in high schools, 38
- High schools, accredited, 38
- Medical and physical examinations (see Student Health, 29, 487)
- Methods of, 34
- Preparatory work, 42
- Requirements, general, 35
- Requirements, special, 37

Advanced credit for high school work, 40

Advanced standing
- Admission with, 41
- Law School, 358
- Letters and Science, 56
- Medical School, 368

Advertising, instruction in, 85, 128

Advisers, faculty
- General statement, 9
- Engineering, 241
- Letters and Science, 51

Aeronautics, instruction in, 276

Agricultural
- Bacteriology, instruction in, 323
- Economics, instruction in, 140, 324
- Education, instruction in, 328
- Engineering, instruction in, 329
- Journalism, instruction in, 331

Agriculture, College of
- Admission requirements, general, 34
- Admission requirements, special, 37
- Buildings, 301
- Courses of instruction, 302
- Curricula in agriculture, 307
- Curricula in home economics, 311
- Dairy courses, 304
- Departments of instruction, 323
- Election of studies by Letters and Science students, 63
- Equipment, 301
- Expenses, 13
- Experiment station, 305
- Extension courses on campus, 304
- Extension service, 305
- Farm Lands, 302
- Fees in special courses, 306
- General information, 301
- Home Economics (see index, Home Economics)
- Independent work, 306
- Library, 302, 351
- Long course, 307
- Middle course, 309
- Organizations, 306
- Pre-forestry course, 310
- Pre-veterinary training, 310
- Publications, 306
- Rural church summer school, 304
- Short course, 303
- Special courses, 302
- Summer session courses, 303
- Teachers' certificate, 317
- Tuition, 13

Agronomy, instruction in, 333
American institutions, major in, 61, 400
Anatomy, instruction in, 373
Anesthesia, 381
Animal Husbandry, instruction in, 334
Anthropology, instruction in, 216, 220
Arboretum, 506
Art Education
- Course in, 407
- Instruction in, 109, 422

Art History, instruction in, 110
Astronomical observatory, 500
Astronomy, instruction in, 112
Athletics (see Physical education, 487, 490)
Attainment examinations, 56
Attendance, 10
Auditors, 10, 485
Awards, 11

Bachelor's degrees (see Degrees)
Bacteriology, instruction in
- Agricultural, 108, 323
- Dairy and food, 324
- Medical, 374

Bands, 32, 103
Beekeeping, instruction in, 339
Biochemistry, instruction in, 336
Biology, instruction in, 112
Board and room, 22
Board of Regents, x
Board of Visitors, x
Botany, instruction in, 113
Buildings, 6 (see also Agriculture, Engineering, etc.)
Bulletins (see Publications)

Calendars, vii, viii, ix
Campus, description of, 6
Certificate
- Admission by, 38
- Teachers', 65, 391

Cheesemaking (see Dairy Industry, 338)
Chemical Engineering
  Course in, 263
  Instruction in, 277
Chemistry, course in, 73
Chemistry, instruction in, 116
  Forest Products, 498
  General, organic, etc., 116
  Physiological, 378
  Pharmaceutical, 197
City Planning, instruction in, 285
Civil Engineering, course in, 245
Classical Humanities, 77
Classics, instruction in, 120
Clinic, 29
Clinic, Speech, 233
Clinical Pathology, instruction in, 377
Clubs and Societies, 30
Commerce
  School of, 83
  Course in, 84
  Instruction in, 124
Commercial Law, instruction in, 127
Committees, faculty, xiv
Comparative Literature, instr. in, 131
Comparative Philology, instr. in, 134
Conditions in Letters and Science, 54
Cooperative Houses, 24
Correspondence study
  Courses offered, 462
  University credit, 461
Courses of study
  Agriculture, long course, 307
  Art Education, 407
  Chemical Engineering, 263
  Chemistry, 73
  Civil Engineering, 245
  Commerce, 84
  Electrical Engineering, 258
  General, Home Economics (B.S. degree), 311
  General, Letters and Science (B.A. degree), 67
  General, Letters and Science (Ph.B. degree), 69
  Home Economics, 311
  Humanities, 76
  Hygiene, 374
  Journalism, 93
  Law, 358
  Long Course in Agriculture, 307
  Mechanical Engineering, 250
  Medical Course (M.D. degree), 369
  Medical Science, 80, 368
  Medical Technology, 370
  Metallurgical Engineering, 266
  Middle Course in Agriculture, 309
  Mining Engineering, 266
  Music, 104
  Nursing, 384
  Pharmacy, 79
  Physical Education for Men, 412
  Physical Education for Women, 414
Credits
  Advanced standing, 41
  Correspondence-study, 461
  General statement, 9
  Letters and Science, 52
  Required for graduation (see various Courses of study)
Curricula (see Courses of study)

Dairy
  Bacteriology, instruction in, 324
  Chemistry, instruction in, 337
  Courses, 304
  Industry, instruction in, 338
Dancing, major in, 417
Debating
  Extension Division, 476
  Instruction in (see Speech, 233)
  Societies, 30
Deans of men and women, 27
Deficiencies in Letters and Science, 54
Degrees
  Bachelors', 10
  Doctor of juridical science, 365
  Doctor of medicine, 368
  Doctor of philosophy, 452
  Higher, 10, 451
  Letters and Science, 51
  List of, 10
  Masters', 451
  Requirements for (see Courses of study)
Deposits, 14
Dermatology, instruction in, 376
Description of campus, 6
Dietetics, instruction in, 388
Doctor of philosophy, 452
Dormitories for men, 23
Dormitories for women, 23
Dramatics, instruction in, 233
Dramatic organizations, 30
Drawing, instruction in, 133
  Freehand, 422
  Mechanical, 279

Economic Entomology, instr. in, 339
Economics
  Agricultural, 140, 324
  General, 136, 139
  Home (see Home Economics)
Education
  Agricultural, 328
  Instruction in, 424
  Instruction in, L and S only, 147

Education, School of, 390
Admission and registration, 390
Art Education, course in, 407
Bureau of Educational Research, 391
Courses for teachers of agriculture and home economics, 419
Degrees, 391
Departments of instruction, 422
Majors and minors, 394
Minors in Physical Education, 414
Physical Education Course, Men, 412
Physical Education Course, Women, 414
Requirements for graduation, 392
Statutory requirements, 394
Supervisory Service Bureau, 391
University Teachers' Certificate, 392

Educational methods, instr. in, 433

Educational psychology, instr. in, 429

Educational research, bureau of, 391

Electrical Engineering
Course in, 258
Instruction in, 280

Employment for students, 16

Engineering, agricultural, instr. in, 329
(see Engineering, College of)

Engineering Economics, instr. in, 283

Engineering, College of
Admission requirements, 34
Advisers, 241
Algebra, preparation in, 241
Buildings, 240
Chemical Engineering Course, 263
Civil Engineering Course, 245
Contracts and Specifications, Engineering, 283
Courses of study and degrees, 242
Curricula, 247
Departments of instruction, 275
Economics, Engineering, 283
Election of studies by Letters and Science students, 63, 242
Electrical Engineering Course, 258
Equipment, 246, 251, 259, 263, 267
Experiment station, 273
Fees and expenses, 14
Forest Products Laboratory, 254, 264
Freshman lectures, 244
Grade-point system, 241
Graduate work, 245
Honors, 252
Independent work, 244
Inspection trips, 243
Law-Engineering Course, 272
Libraries, 240
Mechanical Engineering Course 251
Metallurgical Engineering Course, 266
Mining Engineering Course, 266
Theses, 244
Tuition, 14
Vacation work, 243

English
Engineering, instr. in, 284
Instruction in, 149
Required for admission, 42

Enrolment (see Statistical Tables, 509)

Entomology, instruction in
Agricultural, 339
(see also Zoology, 236)

Entrance (see Admission, 35)

Examinations
Attainment, 56
Doctors', 455
Entrance, 40
Final, 9
Medical and physical, 29, 487

Expenses, 14

Experiment stations
Agricultural, 305
Engineering, 273
Pharmaceutical, 79

Extension courses in agriculture, 304

Extension Division
Business Information Bureau, 482
Classes, 473
Correspondence study, 458
Courses of instruction, 462
Debating and Public Discussion, 476
Dramatic Activities, bureau of, 480
Economics and Sociology, bureau of, 480
Editor, 483
Extension Teaching, 457
Field Organization, 483
Lecture bureau, 479
Milwaukee Center, 474
Organization, 457
Post-graduate medical extension, 476
Public Service, 478
Special courses, 473
University credit, 461
Visual Instruction bureau, 479

Faculty
Committees of, xiv
Directory of, xvi
Summary of, lxvii
Supervision of student life, 27

Failures in Letters and Science, 54

Farm lands, 302

Fees, 14

Fellows and scholars, list of, lvii

Fellowships, graduate, 446

Finance, instruction in, 126, 142

Fine arts (see Art History, 110)

Food chemist, 75
Foods (see Home Economics)
Foreign language
  Recommended in high school, 38
  Required for graduation (see Courses)
  (see also specific language in question)
Foreign trade, instruction in, 127
Forensics, 30
Forest Products, chemistry of, instr. in, 498
Forest Products Laboratory, 496
Forestry, instruction in, 154, 497
Forestry, Pre-, course in, 310
Fraternities, honorary, 33
French
  Club and house, 25, 155
  Instruction in, 154
Freshman Period, 34
Freshman studies in Letters and Science, 68, 71

Gas engines, 296
General course in Home Economics, 311
General courses in Letters and Science
  General requirements, 51
  Bachelor of Arts course, 67
  Bachelor of Philosophy course, 69
Genetics, instruction in, 340
Geography, instruction in, 161
Geological and Natural History Survey, 501
Geology, instruction in, 165
German
  House and club, 25, 170
  Instruction in, 169
Gifts to the University, 5
Glee clubs, 32, 103
Government
  Instruction in, 206
  Student, 27
  University, 5
Grade-point system
  Engineering, 241
  General statement, 9
  Letters and Science, 52
Grades, 9
Graduate School
  Admission to, 442
  Candidacy for degrees, 443
  Clubs and societies, 445
  Doctor of philosophy, 452
  Fees and expenses, 444
  Fellowships, 446
  Masters' degrees, 451
  Non-professional second degrees, 451
  Research fund, 445
  Scholarships, 446
  Second degrees, 451
  Summer session, 445, 485
Graduation, requirements for (see Courses)
Greek, instruction in, 121
Grounds (see Campus, 6)
Gymnasium, 488

Haresfoot, 31
Health service, 29
Higher degrees (see Graduate school, 451)
Higher degrees awarded, 11, 451
High school
  Accredited, 38
  Admission from, 38
  University, 392
High-school work
  Art and vocational subjects, 47
  Civics, 44
  Credit for advanced, 40
  Economics, 44
  English, 42
  Foreign language, 45
  History, 44
  Mathematics, 43
  Music, 47
  Science, 44
Highway Engineering, instr. in, 285
Hispanic studies, major in, 60
Historical sketch, 1
History, instruction in, 175
Holidays (see Calendars, vii, viii, ix)
Home Economics
  Bacteriology, major in, 319
  Clothing and Textiles, major in, 320
  Clothing and Textiles, instr. in, 341
  Educational methods, 346
  Extension service, 305
  Foods and Nutrition major, 318
  Foods and Administration, instr. in, 343
  General course, 311
  General requirements, 311
  Hospital Administration, major in, 322
  Journalism major, 321
  Majors, 312
  Minors, 313
  Non-professional courses, 313
  Nursing major, 322
  Nutrition major, 318
  Professional course, 315
  Related Art, major in, 320
  Related Art, instruction in, 347
  Resident Professional Instruction, 322
  Teachers' certificate, 317
  Teaching major, 317
  Textiles, major in, 320
  Thesis, 313
Honorary fraternities, 33

Honors
Engineering, 252
General, 11
Letters and Science, 55
Horticulture, instruction in, 348
Hospital service, 30
Hospital, State of Wisconsin General, 502
Humanities, Course in, 76
Humanities, Classical, 77
Hydraulic Engineering, instr. in, 285
Hygiene, instruction in, 374
Hygiene laborartory, 499

Incompletes in Letters and Science, 55
Independent work, 66, 244, 306
Industrial Relations, instr. in, 137
Infirmary, 29
Insurance, instruction in, 129, 144
Intercollegiate athletics, 490
International relations, instr. in, 209
Irish, instruction in, 182
Italian, instruction in, 159

Journalism
Course in, 93
Agricultural, instr. in, 331
General, instr. in, 182
Engineering, instr. in, 284
School of, 90

Labor, instruction in, 145
Laboratory fees and deposits, 14
Land economics, instruction in, 140
Landscape gardening (see Horticulture, 348)
Language (see Foreign language, or specific language in question)
Laryngology, instr. in, 381
Latin, instruction in, 122
Law (see also Political Science, 206, 207)
Law School
Admission to, 358
Admission to the bar, 364
Advanced standing, 359
Coif, 364
Courses of instruction, 366
Election of studies by Letters and Science students, 65
Fees and expenses, 14
Law fellowships and the S.J.D. degree, 365
Library, 365
Pre-legal studies, 64, 360
Procedure and practice courses, 364
Required courses, 364
Requirements for graduation, 363
Special students, 359
Studies outside the Law School, 363
Summer session, 365

Lectures
Freshman engineering, 244
Extension, 479
Public, lxix
Letters and Science, College of, 51
Advanced standing, 53
Advisers, 51
Attendance, 53
Concentration, special fields of, 59
Conditions, 54
Courses of study, 51
Credits, 52
Deficiencies, 54
Election of studies outside the college, 63
Failures, 54
Freshman studies, 68, 71
General courses, 67, 69
General regulations, 51
Grade-point system, 52
Honors, 55
Incompletes, 55
Independent work, 66
Major study, 58
Master's and bachelor's degree, combined, 66
Medical science, major in, 59
Medical technology, course in, 59
Physical activity requirement, 57
Placement and attainment examinations, 56
Pre-legal studies, 64
Premedical curricula, 80
Rank of students, 56
Residence requirement, 54
Senior honors, 55
Sophomore honors, 55
Special fields of concentration, 59
Special students not candidates for degrees, 56
Thesis, 58
Transfers to the Law School, 64
Transfers to the School of Education, 71
Transfers within the college, 53
University teachers' certificate, 65
Upper-group status, 56
Libraries, 8
Library School, 97
Course in, 99
Joint Courses, Letters and Science, 99
Limnology, instruction in, 238
Literature (see English, French, etc.)
Literary societies, 30
Loan funds, 17
Long course in agriculture, 307

Machine Design, instruction in, 287
Marketing, 128
Masters' degrees, 451

Mathematics
Instruction in, 185
Required for admission, 43
Mechanical drawing, instruction in, 279
Mechanical Engineering, Course in, 251
Mechanics, instruction in, 288
Medals, 12
Medical examination, 29, 487
Medical Jurisprudence and Medical Ethics, instruction in, 376
Medical School
Admission, 368
Advanced standing, 368
Course in Medicine, 369
Courses of study and degrees, 368
Degrees, 368
Departments of instruction, 373
Medical science, major in, 59, 368
Medical technology
Course in, 59, 370
Instruction in, 382
Medicine, instruction in, 375
School of Nursing, 384
Men, Dean of, 27
Men's dormitories, 23
Metallurgy, instruction in, 289
Meteorology instruction in, 191
(see also Weather Bureau, 499)
Methods of admission, 34
Middle course in agriculture, 309
Military science, instruction in, 492
Milwaukee Center, 474
Mineralogy, instruction in, 167
Mining Engineering
Course in, 266
Instruction in, 289
Municipal Finance and Administration, courses in, 86
Museums, 506
Music, School of, 101
Course in, 104
Instruction in, 191
Musical organizations, 31, 103

Natural History Survey, 501
Neuropsychiatry, instruction in, 377
Non-resident scholarships, 18
Non-resident tuition, 14
Norse, instruction in, 214
Nursing, School of
Admission to, 384
Five-year courses, 384
Expense, 384
Instruction in, 388
State Registration, 387

Observatory, astronomical, 500
Obstetrics and gynecology, instr. in, 382
Officers, Administrative, xi
Educational, xii
of the Regents, x
Ophthalmology, instruction in, 381
Orchestra, 31, 103
Orthopedic surgery, instruction in, 381

Painting, instuction in, 422
Paleontology, instruction in, 167
Pathology, instruction in
Medical, 377
Plant, 351
Payment of fees, 14
Pedagogy (see School of Education, 390)
Pediatrics, instruction in, 376
Petrology, instruction in, 167
Pharmaceutical and plant chemistry, instruction in, 197
Pharmaceutical experiment station, 79
Pharmacognosy, instruction in, 197
Pharmacology, instruction in, 377
Pharmacy
Course in, 78
Instruction in, 196
Philology (see language in question)
Philology, comparative, instruction in, 134
Philosophy, doctor of, 452
Philosophy, instruction in, 198
Physical Education
Course for men, 412
Course for women, 414
Division of, 487
Exemptions and deferments, 487
Instruction in, men, 435
Instruction in, women, 437
Minors in, 414
Required work, 489, 491
Physical therapy
Certificate in, 419
Course in, 372
Instruction in, 380
Physics, instruction in, 200
Physiography, instruction in, 168
Physiological chemistry instr. in, 378
Physiology, instruction in, 204, 379
Placement examinations, 56
Plant pathology, instruction in, 351
Plastic surgery, instr. in, 382
Point-credit ratio, 10
Polish, instruction in, 204
Political economy (see Economics, 136)
Political science, instruction in, 206
Portuguese, instruction in, 232
Post-graduate medical extension, 476
Poultry Husbandry, instruction in, 352
Pre-legal studies, 64, 360
Premedical curricula, 80
Preparatory subjects (see High-School work)

Pre-veterinary training, 310
Prizes, 11
Psychiatric Institute, 503
Psychology, instruction in
Educational, 429
General, 210
Social, 226
Public health (see Hygiene, 374)
Public lectures, lxviii
Public speaking (see Speech, 233)
Public utilities (see Economics, 129, 146)
Publications
Student, 30
University, 6

Radiology, instruction in, 380
Railway Engineering, instr. in, 293
Refunds, 15
Regents, x, 5
Registration days (see Calandar, viii, ix)
Related art, instruction in, 347
Religious organizations, 31
Requirements for
Admission (see Admission, 35)
Graduation (see Courses)
Reserve Officers' Training Corps, 493
Residence requirements, Letters and Science, 54
Rhetoric (see English, 149)
Rhinology and otolaryngology, instruction in, 381
Risk and insurance, 129, 144
Romance Languages (see French, etc.)
Rooming houses, 25
Rural Sociology, instr. in, 225, 353

Sanitary chemist, 75
Sanitary Engineering, instruction in, 285
Scandinavian Language, instr. in, 214
Scholars and fellows, list of, lvii
Scholarships
Graduate, 446
Undergraduate, 17
(see also Loan funds, 17)
School of Commerce, 83
School of Education, 390
School of Journalism, 90
School of Music, 101
School of Nursing, 384
Science, preparatory work in, 44
Self-government, 27
Self-support, 16
Senior honors, 11, 55
Shop Work, instruction in, 294
Short course in agriculture, 303
Social anthropology, instruction in, 216, 220
Social Education, Division of, 27
Social pathology, instruction in, 222
Social psychology, 226
Social statistics, 225
Social welfare of students, 27
Social work, study of, 216, 223
Societies, 30
Sociology, instruction in, 216
Sociology, rural, instruction in, 225, 353
Soils, instruction in, 355
Sophomore honors, 11, 55
Spanish, instruction in, 227
Speech clinic, 233
Speech, instruction in, 233
Special students, 41
State Historical Society, 504
State Laboratory of Hygiene, 499
Statistical tables, 509
Statistics, instruction in, 130, 146, 225
Steam and Gas Engineering, instr. in, 295
Structural Engineering, instr. in, 298
Student government, 27
Student health, 29
Student life, 26
Summer Session, 484
Supervisory service bureau, 391
Support of the University, 5
Surgery, instruction in, 380
Surveying, instruction in, 299
Swimming test, 489

Teachers' Certificate, 65, 392
Textiles, instruction in, 341
Therapeutics, instruction in, 389
Therapy, physical, instruction in, 380
Theses
Doctors', 455
Engineering, 244
Honors, in, 12
Letters and Science, 58
Masters', 452
Topographic Engineering, instr. in, 299
Toxicology, instruction in, 377
Transfers (see Advanced standing, 41)
Tuition, 13

Union, Wisconsin, 22, 26, 27
Unit, high-school, 35
United States Forest Products Laboratory, 496
United States Weather Bureau, 499
University High School, 392
University Teachers' Certificate, 65, 392
Upper-group status in Letters and Science, 56
Urology, instruction in, 382

Vacations (see Calendar, viii, ix)
Veterinary Science, instruction in, 356
Visitors, Board of, x
Visual Instruction bureau, 479

Vocational guidance and education, instruction in, 429
Washburn Observatory, 500
Weather Bureau, 499
Wild Life Refuge, 506
Wisconsin Academy of Sciences, Arts, and Letters, 505
Wisconsin Alumni Research Foundation Scholarships and Fellowships, 447, 449
Wisconsin Geological and Natural History Survey, 501
Wisconsin General Hospital, 502
Wisconsin High School, 392
Wisconsin High School Scholarships, 17
Wisconsin Psychiatric Institute, 503
Wisconsin Union, 22, 26, 27
Women, Dean of, 27
Women's dormitories, 23
Women's Cooperative Houses, 25
Wood Technology, instruction in, 497

Zoology, instruction in, 236

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